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Coeur d'Alene Resource Management Plan and Environmental Impact Statement

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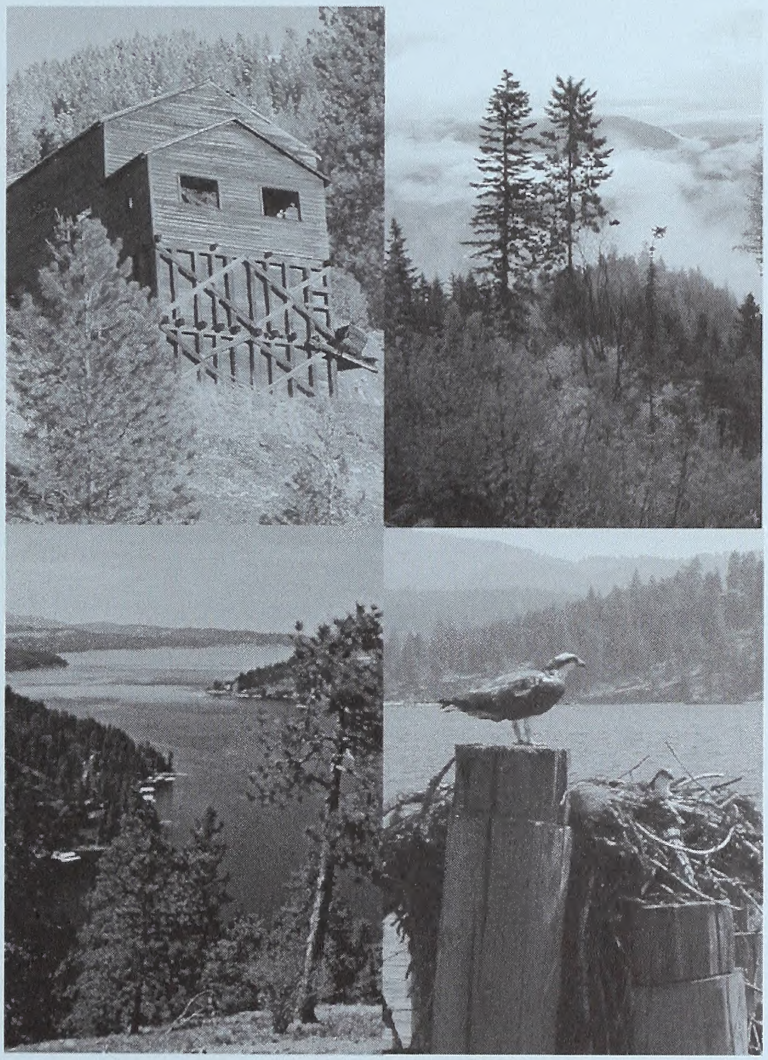

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Coeur d'Alene Resource Management Plan and Environmental Impact Statement

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Coeur d'Alene Field Office
Coeur d'Alene, Idaho

January 2006

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APPENDIX A – BEST MANAGEMENT PRACTICES

APPENDIX A: Best Management Practices (BMPs)

In addition to the guidelines in Appendix E (CNFISH), these BMPs expand and supplement the basic guidelines and minimum requirements of the BLM manual; the Idaho Department of Lands (Forest Practices Regulations); Idaho Department of Water Resources (IDWR) Stream Channel Alteration Regulations; and the Corps of Engineers 404 Regulations.

Road Planning, Design, and Location

- Plan road standards and specifications that maintain forest productivity, water quality, and fish and wildlife habitat.
- Road specifications and plans should be consistent with good safety practices. Plan each road to the minimum standards for the intended use. Adapt the plans to the soil materials and terrain, to minimize disturbance and damages to forest productivity, water quality, and wildlife habitat.
- Plan transportation networks to minimize road construction within riparian conservation areas. Leave or re-establish areas of vegetation between roads and streams.
- Plan roads no wider than necessary for safety and anticipated use. Minimize and balance cuts and fills, especially near streams. Fit the road to the natural terrain as closely as possible.
- Dispose of excavated waste material on geologically stable sites.
- While cut-and-fill road construction is common for gentle terrain, full-bench roads should be designed on slopes over 60 percent. End-haul excess material to a geologically stable site for disposal.
- Plan natural road cross-drainage by insloping or outsloping and by grade changes. Plan for effective, well-placed dips or water bars.
- Design relief culverts or roadside ditches where natural drainage will not protect the road surface, excavation, or embankment. Plan relief culvert locations to prevent fill erosion or direct discharge of sediment into streams.
- Plan minimum number of stream crossings. Make sure they comply with Stream Channel Alteration Law, Title 42; Chapter 38, Idaho Code. Be sure all Class I stream culvert installations allow fish passage.
- Consider reusing existing roads if new construction would result in more long-term impact to fish and wildlife.

Road construction

- Construct roads in a manner that prevents debris, overburden, and excess materials from entering streams. Deposit excess materials outside of stream protection zones.
- Construct roads to comply with Idaho Forest Practices Act (FPA) plan and design guidelines.
- Provide for quarry drainage, to prevent sediment from entering streams.

- Clear drainage ways of all debris, generated during construction or maintenance that may interfere with drainage or impact water quality.

- When constructing road fills near streams, compact the material to settle it, reduce erosion, and reduce water entry into fill. Minimize snow, ice, frozen soil, and woody debris buried in embankments.

- Construct road stream crossings or roads constricting upon a stream channel in compliance with the Stream Channel Alteration Law, Title 42, Chapter 38, Idaho Code.

- Stabilize slopes: Where exposed material (excavation, embankment, waste piles, etc.) is erodible and may enter streams, stabilize it before fall or spring runoff by seeding, compacting, riprapping benching, mulching, or other suitable means.

- Construct cross drains and relief culverts to prevent erosion. Use rip rap, woody debris, down spouts, or similar devices to prevent erosion of fills. Install drainage structures on uncompleted roads before fall or spring runoff.

- Install relief culverts with a minimum drain grade of 2 percent.

- Design roads to balance cuts and fills or use full bench construction where stable fill construction is not possible.

- Minimize sediment production from borrow pits and gravel sources through proper location, development and reclamation.

- Place debris, overburden, and other waste materials associated with construction and maintenance activities in a location to avoid entry into streams. Include these waste areas in soil stabilization planning for the road.

Road Drainage

- Provide adequate drainage from the surface of all permanent and temporary roads by using outsloped or crowned roads, drain dips, or insloped roads with ditches and crossdrains.

- Vary road grades to reduce concentrated flow in road drainage, ditches, culverts, and on fill slopes and road surfaces.

- Space road drainage features so peak drainage flow on the road surface or in ditches will not exceed the capacity of the individual drainage facilities.

- Outsloped Roads: Outsloped roads provide means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels, and transportation safety considerations can be met.

- Insloped Roads: For insloped roads, plan ditch gradients steep enough, generally greater than 2 percent, but less than 8 percent to prevent sediment deposition and ditch erosion. The higher gradients may be suitable for more stable soils; use the lower gradients for less stable soils.

- Drain Dips: Properly constructed drain dips can be an economical method of channeling surface flow off the road. Construct drain dips deep enough into the subgrade so that traffic will not obliterate them.

- Prevent downslope movement of sediment by using sediment catch basins, drop inlets, changes in road grade, or recessed cut slopes.

- Where possible, install ditch relief culverts at the gradient of the original ground slope; otherwise armor outlets with rock or anchor downspouts to carry water safely across the fill slope.

- Skew ditch relief culverts 20 to 30 degrees toward the inflow from the ditch to improve inlet efficiency. Protect the upstream end of cross-drain culverts from plugging.

- Provide energy dissipators (rock piles, logs, etc.) where necessary at the downstream end of ditch relief culverts to reduce the erosion energy of the emerging water.

- Cross drains, culverts, water bars, dips, and other drainage structures should not be discharged onto erodible soils or fill slopes without outfall protection.

- Design roads for minimal disruption of drainage patterns

- Route road drainage through vegetation, slash windrows, or other sediment settling structures. Install road drainage features above stream crossings to route discharge into filtration zones before entering a stream.

Road Maintenance

- Maintain erosion control features through periodic inspection and maintenance, including cleaning dips and cross-drains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

- Avoid using roads during wet periods if such use would damage the road drainage features.

- Grade road surfaces only as often as necessary to maintain a stable running surface and to retain the original surface drainage.

- Avoid cutting the toe of cut slopes when grading roads or pulling ditches.

- Place all excess material removed by maintenance operations in safe disposal sites and stabilize these sites to prevent erosion. Avoid locations where erosion will carry materials into a stream.

Timber Harvesting Activities

- Stabilize or reclaim landings and temporary roads on completion of use.

- For each landing, skid trail, or fire trail, provide and maintain a drainage system to control the dispersal of water and to prevent sediment from entering streams.

- Install necessary cross-ditches on tractor skid trails. Appropriate spacing between cross-ditches is determined by the soil type and slope of the skid trails. Timely implementation is important.

- When natural re-vegetation is inadequate to prevent accelerated erosion before the next growing season, apply seed or construct cross-ditches on skid trails, landings, and fire trails. A light ground cover of slash or mulch will retard erosion.

Recommended Cross-ditch Spacing Distance for Roads and Skid Trails

Grade of Road or Trail	Unstable Soils (High Erosion Hazard)	Stable Soils (Low Erosion Hazard)
2	135'	170'
5	100'	140'
10	80'	115'
15	60'	90'
20	45'	60'
25+	30'	40'

Slash Treatment and Site Preparation:

- Use excavators equipped with rakes or crawler-tractors/rubber-tire skidders equipped with brush blades when piling slash. Avoid use of dozers with angle blades.
- Scarify the soil only to the extent necessary to meet the reforestation objective of the site. Site preparation equipment producing irregular surfaces is preferred. Care should be taken to preserve the surface soil horizon.
- Large woody debris may be left to slow surface runoff, return soil nutrients, provide shade for seedlings, and provide habitat for wildlife.
- Carry out brush piling and scarification when soils are frozen or dry enough to minimize compaction and displacement.
- Minimize or eliminate elongated exposure of soils up and down the slope during mechanical scarification. On steep slopes, carry out scarification in a manner that minimizes erosion.

APPENDIX B – COEUR D'ALENE DISTRICT ROAD GUIDELINES

APPENDIX B: COEUR D'ALENE DISTRICT ROAD GUIDELINES

INTRODUCTION

The following general guidelines were developed to provide an adequate useable road system while protecting the environment. This expands and supplements the basic guidelines and minimum requirements of the BLM manual; Idaho Department of Water Resources (IDWR) (stream channel protection); Idaho Department of Health and Welfare; Division of Environment (Forest Practices Regulations); and Corps of Engineers 404 Regulations. These guidelines must be flexible, and any deviations would be noted and assessed in the environmental assessment process.

ROAD PLANNING

Road planning in the district would be based on the need to provide an adequate road system to effectively manage the public lands while protecting the resources of the areas. The following guidelines are designed to meet these objectives:

– All roads would be planned and developed in cooperation with other land owners. Plans would be made to servo tributary areas -of drainages or ownership block so that only the minimum amount of road necessary to meet management objectives would be planned. Road planning would take into account the long range road needs, expected duration of use of the road, the management objectives, and other pol1ct constraints.

– The road planner must be able to recognize potential impacts to resource values, i.e., silviculture, soils, water, fisheries, wildlife, visual, recreation, etc., and will consult with appropriate specialists when problems are suspected.

– The planned location and design of roads would minimize detrimental impacts on the other resources of the area. Roads will be planned to avoid sensitive and important areas such as wetlands; floodplains; riparian areas; stream zones; big game use areas; threatened and endangered resource habitat areas; cultural or historical sites; scenic views; mass failure hazard areas; etc. Where it is not practical to totally avoid these areas and it is determined the road is necessary to meet management objectives, mitigation would be included in the design of the road.

– Use of existing roads would be favored over construction of now roads when continued use or reconstruction would result in meeting management objectives without major cost Increases while causing the least long run impact to the site.

– In the planning stage, temporary or permanent closure will be considered for all dead end roads or roads with an expected duration of use of 5 years or less.

– Plan roads to be located on natural benches or ridges away from stream courses. Consider using the steepest permissible pitches and grades at stream crossings to avoid closely paralleling the stream for long distances. Planned stream crossings would be kept to a minimum.

– In planning a road system in a municipal watershed, the major objective would be to maintain or improve the quality of domestic water.

ROAD DESIGN AND SPECIFICATIONS

Roads would be designed to meet management objectives using the following guidelines:

– Roads would be designed to be no wider than necessary to accommodate the anticipated use.

– Whore feasible, minimize cuts and fills by designing the road to fit the natural terrain.

– Balanced cut and fill road designs would be used where practical. Where not practical, waste areas would be designed so excess material would be placed in stable areas and borrow pits would be designed to minimize impacts to other resource values.

– When roads are planned on slopes exceeding 60 percent, they would be designed so that the road is on a full bench section. Excess material would be placed in stable areas.

– Design roads to leave vegetation that would screen streams, important wildlife areas, and areas of visual contrast (see Buffer Guidelines and Elk Coordinating Guidelines). Vegetation removal would not extend further than the fill Limits or 3 feet beyond the excavation limits.

– Stream crossings would be selected and designed to involve the least disturbance to banks and existing channels. In doing so, approaches would be designed as near to a right angle with the stream as possible.

– On roads with a life span longer than ***5*** years, bridges or culverts would be designed for all natural water courses. No bridge or culvert should constrict the natural channel.

– Culverts in natural drainage ways would be oriented to the stream channel and would be _j - designed, using half rounds or downspouts, to carry water beyond fills. Protection measures such as riprap would be used to protect streambanks and fills at upstream and downstream ends of culverts and bridges from erosion.

– Relief culverts would be designed with a minimum slope of one percent with sediment catch basins at the culvert mouth. Drainage structures on streams identified as having spawning potential or important fisheries would provide for fish passage. Bridges or natural bottomed culverts are preferable, but if standard culverts are used, they would be designed to meet or exceed Idaho Department of Water Resources (IDWR) regulations and Idaho Fish and Game (IF&G) criteria.

– Road drainage systems would be designed to avoid direct sediment discharge into streams. Use the U.S. Forest Service "Guide for Controlling Sediment from-Secondary Logging Roads" to assist in drainage design.

– Design roads to drain naturally, where possible. Roadside ditches and relief culverts would be designed whenever reliance on natural drainage would not protect the running surface or excavation and embankment areas.

– Soil properties and geologic conditions along the planned road route will be determined before road design begins. These properties and conditions would be included in the design.

– Slash disposal areas and features would be included in the design. Slash and debris may windrowed along the toe of the fill if it is outside the stream protection zone and poses no barriers to wildlife.

– Soil surface stabilization, i.e., riprap, seeding with grasses, or mulching would be designed for all areas where soils are disturbed, especially on large fill areas.

– When roads must cross mass failure hazard areas such as slumps and scarps, the road design must provide for positive stabilization of the rood across the hazard area. Large flit and unstable areas would be protected by surf ace drainage diversion systems.

– When roads must cross poorly drained or wet soils, the road prism would be designed with a structurally adequate subbase to support expected traffic loadings and with an adequate drainage system.

– Design surface treatments (i.e., rock surfacing) for roads constructed from fine plastic soil materials to prevent rutting in wet conditions and dust problems in dry seasons if road use is planned during these times.

– Design landing areas into the road system. Landings would be designed to be of minimum size necessary and located on stable areas outside stream buffer zones.

ROAD CONSTRUCTION

Roads would be constructed utilizing good construction practices. They would be designed to minimize impacts on the area and include incorporation of the following guidelines:

– Earthwork on roads would not be done when soils are saturated or frozen or during wet periods when material can be eroded and deposited outside the roadway corridor. On cohesive soils, no construction would be done when the sails are in a liquid state or in the upper one-third range of the plastic state.

– Before the end of an operating season and before winter or spring erosion periods, the road segments would be surface bladed or cross drained as needed, and drainage structures would be Installed. Other surface protection measures would be taken to minimize erosion from the road corridor.

– During construction, road fill material would be compacted to reduce the entry of water; minimize erosion, and reduce settling. No significant amount of woody material would be incorporated into fills.

– In rippable materials, roads would be constructed with no overhanging banks. Any trees that would be a hazard would be felled concurrent with the construction operation.

– Potentially unstable or erodible material exposed (i.e., road embankments) or generated (i.e., waste piles) during construction would be stabilized as soon as feasible by seeding, compacting, riprapping, benching, mulching, or other suitable moans.

– Drainage structures would be installed as soon as feasible. If not feasible, cross drains would be installed.

– All drainage ways would be cleared of debris generated during construction.

ELK HABITAT COORDINATING REQUIREMENTS

Early in 1976, wildlife biologists in northern Idaho representing the Idaho Fish and Game Department, U.S. Forest Service, Bureau of Land Management, and the University of Idaho began development of a procedure for coordination of silvicultural activities with elk habitat needs similar to that developed by Black, Scherzinger, and Thomas (1976) for the Blue Mountains of Oregon and Washington, but adapted to the habitat needs of Rocky Mountain elk in northern Idaho. In July 1977, a 3-day meeting of those biologists was held at the Idaho Panhandle National Forests Supervisor's Office in Coeur d'Alene, Idaho. Guidelines were developed at this meeting, utilizing research data from literature reviews, personal communication with elk research biologists, and discussions between participants. The resulting guidelines contained the best information available on the effects, relationships, and coordination of silvicultural practices and elk habitat management for the northern Idaho forests. These guidelines would, of necessity, be updated and modified as additional data becomes available.

The objective of these guidelines is to provide forest land managers in northern Idaho a means by which to assess and evaluate the effects of silvicultural prescriptions, timber harvest techniques, and other land management decisions on Rocky Mountain elk and their habitat. It is not meant to provide all the answers for optimization of elk habitat but rather to display cause and effect relationships and to provide alternatives for consideration in land use decision making.

Within the guidelines are definitions of terms used to describe elk habitat, some of which are in the glossary, and descriptions of seasonal habitat requirements of elk. Following is the body of the guidelines listing points of concern of timber harvest methods; stash disposal methods, etc.; research findings on the points specified; and recommendations for each point of concern.

RECOMMENDATIONS FOR COORDINATING SILVICULTURE WITH ELK HABITAT REQUIREMENTS

TIMBER HARVEST

General

The action of removing coniferous vegetation from a given area by logging procedures has the effect of altering the balance between cover and forage areas and disrupting movements and distribution. Since the forage:cover ratio is used to describe optimum elk habitat, forest managers must understand that the balance between these two entities by habitat type will govern the level of possible use of tie area by elk. Utilizing the broad forage:cover ratio concept put forth for the Blue Mountains by Black et al. (1976), these recommendations adapt that concept to northern Idaho and go one step further by providing forage:cover ratios by habitat types.

Silvicultural Methods

Point of Concern

The method of timber harvest selected for a given area will determine the resultant forage produced within the capability of the site, it then follows that the utilization of the various harvest methods with regard to size, degree, and arrangement of the cut will govern the expected elk use after the logging action.

Research Findings

Irwin (1976) reported that the method of harvest will Influence the resultant forb and shrub production on the harvest areas, with clearcut sites producing the most palatable forage and partial cuts the least.

Allen et al. (1976) recommend small openings "...but cutting units as large as 100 acres may be acceptable in some circumstances." A management plan for elk on the Flathead National Forest indicates no clearcut to be over 35 acres in size-(Baglien and Biggins, 1976). Hershey and Leege (1976) found 80 percent of all elk groups (122 observations) to use portions of clearcut within 46 motors (150 feet) of the timbered edge. They further indicate that elk were more apt to use portions of clearcuts farther from the edge if "...scattered clumps of trees remained standing within the logged area."

Lyon (1976) analyzed pet let group distributions and found heavier elk use in openings in the 10 to 40 acre range, especially if slash was adequately disposed of. In southwestern Oregon, Harper (1969) found elk use of openings to decrease sharply at distances greater than 300 yards from the edge.

Reynolds (1962, 1966) found that forage sites created by harvesting timber have decreased elk use at distances beyond 600 feet from the edge of cover. Utilizing the foregoing research, Black et al. (1976) specified that in order to qualify under optimum habitat arrangements, no forage area should be wider than 1,200 feet.

Associated with the size, type, and shape of cot are the leave areas which will remain undisturbed until the vegetation of adjacent cutover areas qualifies as hiding cover. Black at al. (1976) stated that the optimum size for thermal cover units on summer and spring-fall range is 30 to 60 acres.

Reynolds (1966) found that elk used the area that extended 137 meters (450 feet) into the forest from the forest edge. With this information, Black at al. (1976) prescribed hiding cover patches of between 800 and 1,600 feet in width.

Recommendations

(Variations from literature have been made to adapt to the northern Idaho situation.)

– Any silviculturaI method which changes the description of an area from cover to forage, according to our definition, should be confined to an area with a width of from 800 to 1,000 feet that is bordered on all sides by cover of not less than 800 feet width.

– When seeking to provide maximum forage for elk through a harvest method, choose the treatment which yields the highest Relative Value Index for forage production.

– A 3,800-acre home range should be the management unit in which an elk's seasonal requirements will be satisfied. Of the total cover requirement for a given unit, one-half should be hiding cover, one-fourth thermal cover, and one-fourth any combination of hiding and thermal cover. One-fourth of all hiding and thermal cover should also qualify as security cover.

SLASH DISPOSAL METHODS

Point of Concern

The accumulation and treatment of logging debris or slash is inherent with any timber harvest action. This byproduct of timber harvest has the potential to affect elk behavior and movement both in the cut area and adjoining uncut area. The method of disposal utilized will affect the vegetative response towards elk forage production.

Research Findings

Lyon (1976) stated that elk use diminished when slash inside the opening exceeded 0.5 meters (1.5 feet) in depth and dead and down material outside the opening exceeded 0.5 meters (1.5 feet). The treatment of the slash, be it seasonal broadcase burning; handpiling and burning; or lop and scatter, will affect the degree and amount of elk forage produced on the treatment site, assuming the potential does exist (Irwin 1976).

Recommendations

– In order to insure the highest elk use possible n logged areas, particularly forage areas, slash depth should not exceed 0.5 meters (1.5 feet).

– When developing an area with elk forage production as a consideration, use a slash disposal treatment which will yield the highest value for forage production.

–

TIMING AND DURATIOII OF TIMBER HARVEST

Point of Concern

The season of the year and the length of time during any one year that logging operations disturb areas inhabited by elk Influence normal use patterns of the animals, it is important that considerations regarding conflicts between elk use and logging activities be realized and the two be coordinated to mitigate adverse Impacts resulting from the displacement of the animals.

Research Findings

Lyon (1975) stated that displacement of elk, which is considered temporary, has been detected as far as 4 miles from the area of summer logging activity. Ward (1976) found that elk preferred to be at least 0.5 miles from logging activity.

Recommendations

- In that sales are currently designed to run the shortest period of time, it is necessary o work within the specified limo frame by designating compartments and order of logging through sale layout and contract stipulations to eliminate random logging over the entire area.
- Where feasible, logging would not be conducted on areas at the time of year when elk would normally be using them. For example, refrain from logging winter ranges during the winter months.
- Within the plan for timber sales on elk summer range, provide adjacent security areas for the animals to move into during periods of timber harvest or road building activity.

SPECIAL HABITAT COMPONENTS

Point of Concern

Within the spring, summer, and fall ranges of elk there are certain special physical components or habitat areas which receive an inordinate amount of elk use. These include salt licks, wallows, established travel routes, and calving areas. The conservation and protection of these areas is considered to be important in preserving the integrity of the seasonal habitat.

Research Findings

Moist Sites

In the findings and recommendations of the Montana Cooperative Elk-Logging Study (Allen et al. 1977), the importance of moist sites in elk summer range is stressed. In Montana, most of the important wet sites were located within the Ables lasiocarpa habitat series (Pfister 1976); however, these components in northern Idaho may also be found in those types within the pachistima union (Daubenmire 1968). These sites are found -in drainage heads bordering streams or marshy meadow; moist swales; or benches studies indicate these sites are important as food sources prior to the breeding season and during the reproductive period. They also provide thermal and security cover.

Wallows

Elk wallows are shallow pools normally located in boggy areas or where water seeps from a slope into a flat bench. Murie (1951) indicates its function is to soothe the rutting bull by cooling the body and serving as an outlet for pent up energy. Struhsaker (1967) speculated that "...the function of wallowing is to facilitate the location of bulls by one another." Cow elk use the wallows in similar fashion to the bulls in later summer. Often the wallows remain as clear pools during the spring and early summer to provide a water source for elk and other species. Wallows are a preferred habitat component for elk and are-used to varying degrees when available.

Licks

Elk utilize mineral licks when available in northern Idaho, most of these licks are the sites of past and current salting programs (either for game or livestock) or where naturally salty water- and/or soil is present. Dalke et al. (1965) analyzed the water from natural salt licks in north-central Idaho and found that sodium seemed to be the element attracting elk. They found elk use of licks to occur primarily between the third week in April and late August. Peak use occurred during the second and third weeks of June. They also reported that salt licks within succulent herbaceous areas were used considerably more than licks in shrubby areas.

Murie (1951) states "...that wild game species need salt is open to serious question...wild animals are adapted to natural food sources." However, Botkin et al. (1973) suggests that the availability of sodium on Isle Royale, Lake Superior, controls the moose population. So the question of how critically elk need these areas remains unanswered; however, as with wallows, licks are heavily used when available and we therefore believe in protecting them from disturbance.

Rub Areas

Prior to and during the rut, bull elk rub their antlers, removing the velvet and thus finalizing the hardening process. As the rut progresses, the rubbing and fighting of small trees is intensified. Some discussion has occurred over the preference for specific areas for use of "rub trees" by bulls during rutting season. It is our opinion that such areas coincide with preferred habitat components for other needs such as thermal and hiding cover and wallows or licks.

Calving Areas

The term "calving area" is given to those areas which the cow elk traditionally utilize for giving birth. These areas, though often hard to positively identify, have a mixture of components which make them attractive to the elk for calving purposes. Thomas et al, (1976) provided the following capsule description of probably calving habitat:

"In short, calving grounds are located in the transition zone where escape and thermal cover in the form of forests exist for the cows; where there is hiding cover in the form of shrubs or dead and down logs, etc., for relatively immobile newborn calves; where succulent forage is available for the lactating female; where water is within 305 meters (1,000 feet); and where the terrain is gently, allowing easy movement of the cow immediately before and after parturition."

Travel Lanes

Within forested areas, elk move from forage to cover areas and from one seasonal range to another along selected and traditional routes. Logging activities tend to disrupt or block these travel routes resulting in displacement or elimination of elk from formerly utilized habitats (Leege 1976 and Lyon 1975).

Recommendations

– Whenever these special components are encountered in connection with a timber sale action or questions arise as to their occurrence or importance, a wildlife biologist must evaluate these on a case-by-case basis.

– In regard to licks and wallows, these should be preserved and buffered from disturbance by a minimum of 1.5 sight distances.

– Whenever the existence of calving habitat is confirmed or expected, it should be reviewed by the wildlife biologist as it is considered to be an extremely important habitat component.

– Upon identifying the travel lanes, the following points should be considered: 1) maintain known travel routes in continuous hiding or thermal cover for at least three sight distances wide; and 2) travel lanes should be provided for saddles and ridges as these are points of heavy travel flow by the animals. These should be tied to forage and cover areas.

– If an area within a proposed timber sale exhibits a high density of "rub trees", an effort should be made to preserve that area or areas of similar physical and vegetative makeup within the home range.

– No activities associated with timber harvest or pre-sale activities such as road building can be permitted in calving areas from the period of May 1 through July 15 (Roberts 1974).

ROAD EFFECTS

That elk are adversely affected by roads is well documented in literature. Such adverse effects vary from disturbance due to presence of vehicular travel to increasing hunter access, thus allowing over harvesting of elk in localized areas.

Habitat Use and Roads

Studies indicate that elk do not frequent areas adjacent to roads in proportion to similar habitat in undisturbed areas. Hershey and Leege (1976) and Ward (1976) found elk use to be disrupted within .4 kilometers (.25 miles) on either side of a road. Coggins (1976) reported high road density and constant vehicle travel excluded elk from many areas of escape cover. Studies of the effects of roads on elk use by Perry and Overly (1976) found that generally, roads significantly reduced elk use of adjacent habitat below average levels.

Data indicate that elk respond less to constant non-stopping vehicular travel (usually associated with main roads) than to periodic slow vehicle use where vehicles stop and human activity is associated with it (Ward, 1976; Burbridge and Neff, 1976).

Human Access and Roads

The major consideration in the roading of elk habitat is the human access it will allow into elk sanctuary areas. Thiessen (1976) states, "The substantial reduction of elk...between 1960 and 1974 was probably caused by direct overharvest of female elk. This was made possible by a combination of proliferating access into the unroaded elk sanctuaries, coupled with hunting seasons promoting high level hunting opportunity."

Leege (1974) believed that the decline of elk in the Pete King Creek area was due to "increased access into the timbered portions of the drainage brought about by numerous logging roads (making) elk more vulnerable to hunters..." The size of security areas that should remain after logging will vary with the distance from open roads, since most hunters do not penetrate much beyond one mile from an open road (Ream of al. 1974).

Roads may limit or exclude elk use of preferred habitat when:

- Road locations are such that adequate buffer strips are not provided between the road and the habitat in question.
- Road density is such that minimum security cover needs are eliminated.
- Road activity is such that elk tolerance limits are exceeded.
- Road locations that interfere with major travelways, such as saddles and ridge tops.

Roads may become barriers to elk movements when:

- Cut slopes are over 2.5 meters (8 ft.) high with a ¾ to 1 or steeper slope.
- Slash on fill slopes (below road) is in excess of 0.5 meters (1.5 foot) deep and has less than one opening per 200 meters.

Recommendations

- All elk trails crossed by roads should provide access on cut slopes not to exceed natural gradients. If slash is piled along roads, openings 4 meters wide are required at trail crossings.
- Where cut slopes are over 2.5 meters (8 feet) in height and/or have a greater than .75 to 1 slope, elk access will be provided at major trails and travelways.
- Slash disposal for road construction shall be such that no barriers to elk movement are created. Slash depths should not exceed 0.5 meters in depth, in areas where complete slash disposal is impractical, openings 4 meters (13 feet) wide at 200 meter (650 f cot) intervals are essential.
- Narrow rights-of-way should be maintained. Vegetation removal along roadsides should not extend further than excavation or fill.
- Roads near meadows and other openings, including cutover areas, should have a minimum of 400 meter (1,300 feet) forested barrier between the road and the opening.
- Roads should avoid saddles and ridge tops whenever possible.
-

Road Closures

The ability to close roads provides the land manager with numerous options to control and uses in a given area.

Permanent Closures

Permanent closures have many advantages in that they insure greater security for elk and provide increased forage when the roadbed revegetates to native and planted species. In any sale area, all temporary and spur roads should normally be permanently closed.

Temporary Closures

Temporary closures may be utilized on system roads where continued access is necessary. Temporary closures may be implemented to:

- Reduce hunter access. This would provide elk with sanctuaries during hunting season. These closures should be initiated beginning September 1 and continue through the elk hunting season.
- Protect special habitat. Such closures would provide protection to wallows, calving areas, security cover, etc.
- Reduce stress to wintering elk. Such closures would protect elk on wintering ranges from harassment by snowmobilers and other motorized activity.

Gate Closures

Gates provide the option to permanently close roads; to close to public access but allow administrative uses; to close during period when resource damage can occur; or to provide for future closure should indications of resource damage occur.

Recommendations

- Gates should be installed at onset of road building activity.
- Gates entering any active timber sale area should be closed and locked during any period of inactivity exceeding 48 hours.
- Gates should be signed to indicate: 1) the season or period of closure, and 2) the reasons for closure.

Buffer Strips Along Roads

Constant human activity and traffic on forest roads left open to motorized travel serve to render portions of otherwise usable habitat useless to the elk. From this standpoint, it is necessary to utilize buffer strips to reduce the adverse impacts on roads that cannot be closed.

Recommendations

- Allow for hiding cover to act as buffer strips along permanent open roads.
- Tie these buffer strips to travel lanes which are provided throughout the sale.

- The accepted width of a given buffer strip should be minimum of 1.5 sight distances:

GRAZING AS RELATED TO SILVICULTURAL PRESCRIPTIONS

On occasion, specific silvicultural prescriptions may allow for short-term livestock grazing opportunities. The effects of livestock grazing as it applies to elk and their habitat indicate, for the most part, that competition for forage exists and that inter-specific interaction occurs.

Predicting Elk Responses to Habitat Changes and Disturbance Factors

Cover:Forage Ratios

Wildlife biologists in northern Idaho generally concur that on summer and spring-fall range cover is a more important component of elk habitat than forage since it is more frequently lacking. Consequently, when logging, there is a greater potential for reducing elk use by removing cover than there is for increasing elk use by improving forage production. However, on winter and early spring ranges, forage requirements are commonly higher than the habitat can easily provide. Hence, on these ranges, forage production increases which result from logging can be a major benefit.

Some habitat types are especially important as summer range because of the high water table and subsequent cool temperatures and succulent vegetation they possess. Maximum elk use is assumed to occur in these areas when 75 percent is in cover. Any further removal of canopy tends to decrease the attributes elk seek there during the hottest part of the year.

Other habitat types provide dense thermal cover on summer and spring-fall ranges but are not as moist and, therefore, not as attractive to elk during mid-summer. Those areas can be made more attractive by increasing forage production which will be utilized by elk primarily during spring, early summer, and late fall.

A third category of habitat types occurs primarily at lower or higher elevations where summer use by elk is usually light because of a lack of thermal cover and/or inherently poor forage production. The low elevation habitat types are more commonly used by elk during the winter and early spring months, and any logging should be evaluated in light of elk needs at those times of the year. In some cases it will be necessary to establish season of use by ground surveys before logging can be properly evaluated.

On winter ranges, forage is usually a more critical factor than is cover. A forage:cover ratio of 75:25 is best where snow depths are less than 1.5 feet on the ground during most days of an average winter. Cover needs are minimal on this type of winter range if isolated from man's activities (Leege and Hickey 1977). However, Montana studies indicate elk prefer dense timber stands and larger trees for bedding cover. These areas are normally near foraging areas. Bedding areas were abandoned following heavy selection logging (Beall 1976). When snow depths average 1.5 to 2.5 feet, a 60:40 ratio is necessary. On winter ranges where snow depths are more than 2.5 feet on most winter days, a 40:60 ratio provides optimum habitat. The additional cover is necessary to intercept the snow and provide for ease of movement. However, the proper ratio and snow depths are only one factor of winter range needs. Range quality is largely determined by the amount of palatable and nutritious browse being produced in forage areas. Other important factors include aspect, location, and juxtaposition with other habitat requirements.

Roads

It should be made clear at this point that optimum habitat assumes a proper distribution of cover and forage and also, more importantly, that the habitat is not being adversely influenced by man. When frequent man-associated disturbances are introduced, an elk's need for cover increases significantly. Roads are the means by which most man-associated disturbances arrive on elk ranges, and consequently, a method of predicting effects of roads on elk use has been devised.

Adjacent Areas

An area proposed for a timber sale cannot be properly evaluated for elk use without giving some consideration to surrounding habitat. The optimum forage:cover ratio in the proposed sale area will depend to some extent on the forage:cover ratios and access roads in the areas on all sides of it. For example, a 100-acre patch of standing timber is more important as hiding and/or thermal cover if the 500 acres immediately adjacent on all sides have been recently clearcut than if similar timber still remains on all sides.

Sales should be evaluated on how they affect not only the area within the sale boundary, but the entire home range of the elk which use the sale area. As noted earlier, the average summer home range for a cow elk is about 6 square miles (3,800 acres) (Zahn 1974 and Ream et at. 1974). We propose this to be the size of the land unit on which a logging sale impacts elk. To define the area, the center of the sale area is estimated and serves as the center of a circle which encompasses the home range acreage.

If the sale area is larger than 3,800 acres, home range acreage need not be considered, and only the area within the sale boundary is evaluated. If portions of the sale area lie outside the home range circle, those portions should be included. In both the sale and home range acreages the term "adjacent area" then refers to that area outside of the sale area boundaries but within the home range.

APPENDIX C – OLD GROWTH DEFINITIONS

EXTRACT FROM NORTHERN REGION
USDA FOREST SERVICE
APRIL 1992
R-1 SES 4/92
(errata corrected 02/05)

OLD-GROWTH FOREST TYPES OF THE NORTHERN REGION

by

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INTRODUCTION

In 1989, The Chief of the Forest Service established a National Old Growth Task Force and an action plan to deal with management of old growth forests. The action plan called for each Region to develop local definitions based upon a national generic definition of old growth. Regional definitions were not to be tied to resource values derived from old forests, but would be based on ecological attributes. In 1989, Region 1 named an old growth committee and set forth an action plan for meeting national requirements.

Many people do not see the National Forests as "working" forests, but rather believe old growth is the ultimate and desirable forest condition. Others believe old growth has value only as habitat for dependent or associated wildlife species. Old growth has an important role to play in forests managed for multiple resources. Region 1 views old growth as one element of the total diversity that should be found in a healthy forest landscape.

Region 1 old growth types were developed by three committees representing the major geographic areas of northern Idaho, western and eastern Montana. Each National Forest involved concerned publics as these definitions evolved. The Intermountain Research Station participated in this effort as well as interest groups from outside of the agency. The definitions have been coordinated with similar efforts in adjoining Forest Service Regions 4 and 6.

These definitions will be used in the implementation of Forest Plans. Where there are conflicts with existing plan requirements, differences will be worked out on a case-by-case basis. These definitions will be used as Forest Plans are revised. They will constitute an important criteria for the current Regional effort of Sustaining Ecological Systems.

Both NFMA and WO direction prescribe an ecological approach to old growth that considers old growth as a key element in providing for biological diversity. Old growth dependent and associated species are provided for by supplying the full range of the diversity of late seral and climax forest community types that make up habitat for these species.

Past efforts at developing old growth definitions were generally applicable only to the area where they were developed, because they were not stratified based on site potential. Because of differing capabilities of the land, adequate and defensible old growth definitions should be based on a site potential stratification, such as habitat type, series, or habitat type groups. Otherwise, type descriptions will fail to adequately describe old growth across a variety of site conditions. As examples, stands with lots of 21" diameter trees could easily be produced on sites with hemlock and cedar potential in 90 years. On the other hand, many higher elevation subalpine fir sites could never grow a 21" tree. Multi-storied stands may be elements of old growth on many hemlock and cedar habitat types, but they probably are not natural on drier Douglas-fir or ponderosa pine habitat types.

Habitat types are based on the biological capability of the land to produce a given type of plant community at the endpoint of secondary succession (climax). Normal timber management rotations do not extend long enough to produce climax plant communities, or subclimax late seral community types that would be part of a natural landscape. A biodiversity-based approach to old growth management seeks to maintain a relatively natural range of both climax plant communities and late seral subclimax communities. Both climax and late seral subclimax community types will be composed of stands with mixes and structural characteristics that are not commonly seen in current timber management regimes.

Ecological definitions of all successional stages, stratification by habitat types, and other site conditions will help us do a better job of managing for a landscape with a full range of natural biological diversity.

As we inventory the landscape, we must gather enough hard data to provide for management needs and to improve our understanding of communities and their dynamics. The old growth types of this report are a first step in describing the successional stages for forest types of the Northern Region.

ECOLOGICAL CONCEPTS RELATED TO OLD GROWTH FORESTS

The term old growth has not been a well defined or common term in much of the forest ecology literature. The older stages of forest succession have typically been referred to as late seral, climax, mature, or overmature (Dansereau 1957; Daubenmire 1968; Kimmons 1987; Spurr 1964; Weaver and Clements 1938). The old growth stage is thoroughly discussed by Oliver and Larson (1990), with references to old growth dating back to the 1940s. Environmentalists have typically used ancient, primeval, and virgin forest as terms for the older stages of forest succession (Hunter 1990).

With the emergence of old growth as a management issue in the 1980s, that developed first in western Washington and Oregon, the literature has become prolific with discussions of old growth definitions and characteristics. Various definitions have been developed and used for the forests of Washington and Oregon (Franklin and others 1986; Franklin and Spies 1991; Marcot and others 1991).

Unfortunately the definitions and ecological relationships for forests of Washington and Oregon have often been extrapolated to the northern Rocky Mountains of Idaho and Montana. The ecological systems of the northern Rocky Mountains are significantly different than the Cascades, due to a variety of factors. Primary factors that differ include: a climate that is transitioning from marine to continental influences; an older land surface with complex geologic history and soil development; generally drier conditions with relatively frequent droughts and extensive fire; stand and fuel conditions that often result in running or creeping ground fire that does not kill the overstory trees; stressed sites that have significant insect and pathogen influences; and a different complex of biogeographic fauna and flora that have evolved in a very different system.

Based on Oliver and Larson (1990) true old growth would only include trees that have grown up without outside stand initiating disturbances. Transition old growth can contain large, old trees that are relics from stand initiating disturbances. This definition is promoted by Hayward (1991) in emphasizing that old growth should be restricted to stands that are influenced by within-stand processes. This narrow definition generally does not fit with stand development processes common to the northern Rocky Mountains. This is well documented by Achuff (1989) and Habeck (1988; 1990) in reviews of old growth forests. Old growth stands in the northern Rockies that proceed from a stand-consuming fire, through dominance by seral tree species, and then to climax are typically short lived, due to the high probably of crown fire. Many of the oldest stands of old growth are dominated by seral tree species that are maintained as dominants and protected from crown fire, by repeated underburns that reduce ladder fuels and competition from more tolerant tree species. These relationships are well documented by Arno and others (1985), Arno (1980), Fisher and Clayton (1983), and Fisher and Bradley (1987). In reviewing historic data it has recently been determined that the bulk of the presettlement upland old growth in the northern Rockies was in the lower elevation, ground-fire maintained ponderosa pine/western larch/Douglas-fir types (Losensky 1992). This does not mean that other types of old growth were not common or not important, but it emphasizes that the older stages of succession in the northern Rockies do not follow traditional old growth climax succession theory. In essence it provides solid support for more region-specific old growth definitions and understanding of ecological relationships.

As the old growth issue began to receive national attention, it became apparent that the definitions that had been developed for Washington and Oregon would not work for other geographic areas. This is reflected by Hunter (1987) who emphasized that there was no generally accepted definition, that the climax forest idea was too restrictive, and that old growth forests should be relatively old and relatively undisturbed by humans. Thomas and others (1988) emphasize that there is no single all-inclusive definition and that old growth characteristics vary by region, forest type, and local conditions. Hunter (1990) promotes that a universal old growth definition is not desirable and that forest ecologists should develop unique definitions for each forest type, taking into account forest structure, development, function, and patterns of human disturbance.

This general emphasis in the scientific literature for region and type specific definitions evolved into national Forest Service direction in 1989. This included a generic definition of old growth forests as "ecosystems distinguished by old trees and related structural attributes." Within the description old growth could encompass both seral fire-dependent species and tolerant, climax species. The national direction provided a list of general characteristics that "typically" distinguished old growth from younger growth.

Within the Northern Rockies various attempts at old growth definition were made during the Forest planning process. Unfortunately, these efforts continued to follow the definitions being developed in Oregon and Washington or emphasized structural characteristics related to old growth-associated wildlife species. Pfister (1987) conducted the first quantitative analysis based on ecological data for the Northern Rockies. This effort concentrated on the Kootenai and Nez Perce National Forests and provided a structure for the analysis presented in this paper. The analysis provided a basic review of concepts and provided an ecologically based classification of old growth based on numbers of large trees, snags, and down logs and described associated attributes of layers, canopy cover, age, and basal area. Pfister (1987) provided eight recommendations for further analysis, some of which have been crucial in conducting the regional level analysis.

ECOLOGICAL STRATIFICATION FOR THE NORTHERN REGION

In order to classify old growth forests it was decided that the most applicable system for stratification of site potential would be groups of habitat types. The habitat type classification systems used for this grouping are the "Forest Habitat Types of Northern Idaho: A Second Approximation" (Cooper and others 1991) and "Forest Habitat Types of Montana" (Pfister and others 1977).

Habitat types were grouped using the interdisciplinary process. For each zone a group of ecologists, soil scientists, and silviculturists met and selected criteria for grouping similar habitat types. Criteria used for grouping included: similarity of disturbance response, potential productivity, potential stocking density, potential down wood accumulation, fire frequency, and tree species. These groups relate closely in the environment with temperature and moisture regimes.

Appendix A, table 1 provides a listing of habitat type alpha and numeric codes for groups in Idaho, north of the Salmon River. Appendix A, table 2 provides a listing of habitat type alpha and numeric does for groups in Montana, west of the continental divide. Appendix A, table 3 provides a listing of habitat type alpha and numeric codes for groups in Montana, east of the continental divide. Due to differences in precipitation distribution, length of growing season, and floristic composition, the habitat types that occur in a given group will differ between geographic areas.

The old growth types for the Northern Region have been developed for three different geographic areas within the Region. The Region was geographically stratified into northern Idaho, western Montana, and eastern Montana. The Northern Idaho Zone is the western side of the northern Rocky Mountains in Idaho that is heavily influenced by pacific storms and weather patterns and generally received higher precipitation, especially in the winter, than areas to the east. The area generally north of Lake Coeur d'Alene has landforms designed by past continental glaciation, while the areas to the south have been primarily influenced by steep river downcutting and mountain glaciation. Northern Idaho is also heavily influenced by past volcanic events that deposited ash, which gives the soils relatively higher moisture holding capabilities.

The Western Montana Zone generally extends from the Bitterroot Mountain Divide to the Continental Divide of the Rocky Mountains in Montana. This area is influenced by pacific storms, with relatively high precipitation in the winter, but is also in the rain shadow of the Bitterroot Mountains. Some continental climatic influence also occurs and this area typically receives a higher percentage of precipitation in the summer than northern Idaho. Some areas in western Montana have soils developed on volcanic ash, but much less than in northern Idaho. The area north of Missoula has landforms designed by past continental glaciation while the areas to the south have been primarily influenced by glacial lake deposition, moderate river downcutting, and mountain glaciation.

The Eastern Montana Zone generally extends from the Continental Divide east to the eastern portions of the Rocky Mountains that occur near Billings and north to Lewistown and Great Falls. This area is strongly influenced by both a continental climatic influence and storms from the west. It lies in the rain shadow of the Rocky Mountains and receives much less precipitation than northern Idaho or western Montana. A relatively high percentage of the precipitation occurs in the summer. A minor percentage of the soils are influenced by volcanic ash deposition. A large percentage of the soils are developed on limestone parent material. Landforms north of Great Falls were generally developed through continental glaciation, while landforms to the south were generally developed as a result of mountain glaciation and gradual to moderate river downcutting.

ANALYSIS PROCESS FOR CLASSIFYING OLD GROWTH TYPES

For each geographic zone of the Region a committee was selected that included members from National Forest Systems, Forest Service Research, Universities, and the public. Each committee was chaired by a Forest Supervisor and had members from each National Forest that represented various disciplines. The committees also coordinated with adjacent Forests in other Regions. The R1-RO Ecology group provided coordination and leadership throughout the process and developed the computer analysis tools with the assistance of the Regional Timber inventory group. The committees conducted a preliminary analysis to develop the draft definitions presented in this report. Further refinement and development of descriptions will be conducted as more data is collected.

The concept of old growth was based on the National definition. In this definition old growth forests are considered ecosystems that are distinguished by old trees and related structural attributes. They encompass the later stages of stand development that typically differ from earlier stages in characteristics such as tree age, tree size, number of large trees per acre and basal area. In addition, attributes such as decadence, dead trees, the number of canopy layers and canopy gaps are important but more difficult to describe because of high variability.

The October 1989 Forest Service position statement on old growth recognized that "old growth forests encompass the late stages of stand development and are distinguished by old trees and related structural attributes . . ." and that " . . . specific attributes vary by forest type." Forest Service Regions were charged with developing forest type old growth definitions, and conducting old growth inventories.

Both biological processes and human values were considered to determine criteria for old growth. As stands develop and age, there are changes in ecological composition, structure, and function as well as changes in aesthetic and economic values. The point in that process of forest aging where a stand is classified as old growth is largely a function of human values and concerns. It's similar to the process of human aging. People change in real physical ways as they age. But, how old is considered old, depends upon whether you ask a 15 year old, a 40 year old, or a 70 year old person.

Forest Plans generally set timber rotations at approximately 100 years, plus or minus 2 decades. Old growth has become an issue because some people think that it might be in short supply. Therefore, our concern with old growth focuses on forests with tree ages and sizes, or stand structures significantly different than what could be obtained in 100 years.

Plot data from the Northern Region stand exam inventory (USDA Forest Service R-1; 1989) were used as the basis for the old growth definition analysis. All plots that met a given set of criteria were used in the analysis.

The criteria for inclusion of a plot in the analysis were:

1. Plots were survey type 45 and 46, which meet full standard exam procedures.

2. Plots were selected from stands with no evidence of logging.

3. Plots had an identified habitat type.

4. The largest tree on the plot was equal to or greater than 100 years old and ≥ 9 inches dbh.

5. The plot basal area for trees equal to or greater than 5" dbh was ≥ 40 sf/acre.

A total of 680,000 plots were screened for the Idaho Panhandle, Clearwater, and Nez Perce National Forests in northern Idaho. A total of 1,068,000 plots were screened for the Kootenai, Flathead, Lolo, and Bitterroot National Forests in western Montana. A total of 388,000 plots were screened for the Lewis & Clark, Helena, Deerlodge, Beaverhead, Gallatin, and west side of the Custer National Forests in eastern Montana.

Habitat types are a land classification system based on the potential plant associations that will dominate a site at the end point of plant succession (climax). Habitat types are ideal for stratifying site conditions in order to predict the type of old growth forest they will produce. The plot data was sorted into groups of similar habitat types. Before a site reaches climax condition, it may be dominated by several different conifer tree species (with some associated structural differences), so plots in each habitat type group were subdivided by forest cover type (based on plurality of tree species basal area).

Within each habitat type group and forest cover type group, plots containing large trees over 100 years of age were selected for further analysis. The guiding principle was to select plots containing large, old trees that would represent the latter stages of stand development. These plots with large old trees were then further analyzed to determine the characteristics typical of old growth. These plots with old trees were analyzed for significant differences in tree ages, sizes, and forest stand structures and composition. Based on groupings of the data, and on professional judgment of the foresters, ecologists, and wildlife biologists, the following ages were selected as minimums:

North Idaho	
All types except lodgepole pine	150
Lodgepole pine	120
Western Montana	
Ponderosa pine, Douglas-fir, western larch	170
Lodgepole pine	140
Other types	180
Eastern Montana	
Douglas-fir types 1 and 2	200
Limber pine	120
Lodgepole pine	150
Subalpine fir type 10	135
Subalpine fir other types	160
Whitebark pine type 11	150
Whitebark pine type 12	135
Pondersoa pine	180
Douglas-fir type 3	180

The other minimum criteria -- tree size, and number of large trees per acre -- were selected to distinguish those stands where the old trees were dominating the stand structure. The number of trees equal to or greater than a given age and size (diameter at breast height) were used as minimum screening criteria for old growth. Associated characteristics (such as number of snags, down woody material, dead tops and decay, and diameter variation) represent the means, values, and ranges for structural characteristics found in the data for plots that met the old growth minimum criteria.

Three broad old growth stand structures were recognized in the analysis:

1. *Late Seral, Single-Story* -- these stands are still dominated by the tree species and tree canopy later that first captured the site after a stand replacing disturbance. The upper canopy is relatively closed. If understory trees were present, they are generally small, exhibit little growth, and do not form an apparent canopy layer. Other understory vegetation may be sparse. Ages and sizes of dominant trees are significantly beyond what may be found at culmination of mean annual increment of tree stand volume growth, growth rates are slowing, and tree crowns are showing signs of maturity or old age (flat, wide tops with slow main leader growth). This stage may have moderate amounts of tree decay, but little mortality, and few snags or pieces of down woody material.

2. *Late Seral, Multi-Story* -- the initial seral trees and canopy layer have lost control of the site. Disturbance or the natural mortality of age has produced holes in the upper canopy; shade tolerant understory vegetation and trees are increasing in crown volume; and shade tolerant understory tree species are growing towards the main canopy, and may have occupied part of it. Two or more canopy layers are obvious, the canopy may be irregular, and broken tops, bole rot, snags, and large down woody debris may be common. The stand may have small openings dominated by shrubs or understory forbs. Although there may be some very large or old individual trees, stand average diameter and age may be either greater or less than in the previous Late Seral, Single-Story stage. There is often great variation in average tree diameter.

3. *Near Climax* -- this stage is dominated by shade tolerant (possibly climax) tree species that captured the site after the initial seral stand has been largely replaced. A few remnant shade intolerant, early seral trees may persist, but they represent a small part of total live canopy. Depending upon overstory structure, there may be great variation in understory characteristics and tree diameter distributions. If the shade tolerant tree species are relatively short lived (such as subalpine fire), or only moderately long lived (such as grand fir), the canopy will be multi-storied, and contain significant numbers of snags and down woody debris. If the shade tolerant tree species is very long lived (such as cedar), there may be 1 dominant canopy layer, with relatively few snags or pieces of down woody debris.

The above 3 stages are generalities useful for explaining why an individual old growth stand may be expected to have, or not have, various structural characteristics sometimes identified with old growth in forest ecology literature. Individual old growth stands may combine various elements of the above 3 stages, or may have some other unique characteristics as the result of particular site and stand history.

The plot data base was stratified by habitat type groups and forest cover types. The forest cover type was assigned to the tree species with plurality of basal area for trees equal to or greater than 9" dbh. Data from these plots on numbers of trees by 4" diameter size class, basal area, layers, snags, decay, broken tops, age, and crown ratio were graphed in various combinations, analyzed in frequency diagrams, and displayed in tables. Interdisciplinary team members from the zone committees and Forests then reviewed the output and identified minimum screening criteria for old growth for each habitat type group and forest cover type by Forest. Zone committees then met and grouped this data into minimum criteria for screening stands for old growth.

The minimum screening criteria can be used to identify stands that may meet the old growth type descriptions. Type descriptions are presented in a later section of this report. The screening criteria are presented in tables 1, 2, and 3 for the north Idaho, western Montana, and Eastern Montana zones respectively. In the tables the column headings are defined as follows:

Old Growth Type - the type is a group of forest cover types that have similar characteristics relative to size, number and age of dominant overstory trees. The forest cover types are identified with the following codes: PP - ponderosa pine; DF - Douglas-fir; L - western larch; LP - lodgepole pine; Y - western yew; GF - grand fir; SAF - Engelmann spruce and subalpine fir; WH - western hemlock; WP - western white pine; MAF - mountain hemlock, alpine larch, and subalpine fir; WBP - whitebark pine; C - western redcedar; PF - limber pine,WSL-combinations of alpine larch, whitebark pine, and limber pine

Habitat Type Group - Habitat types are grouped differently according to geographic zone. The letters identify the zone habitat type groups displayed in Appendix A. Habitat type groups are grouped into larger groups based on similarity of temperature and moisture regimes within each zone.

Minimum Criteria:

Minimum Age of Large Trees - This is the minimum average age for the largest size class for the old growth type.

Number TPA/DBH - Number of live trees per acre equal to or greater than a given dbh level and age. This would be the minimum number of live trees per acre equal to or greater than a set dbh level and age.

Minimum Basal Area - the minimum basal area in square feet for trees equal to or greater than 5" dbh.

Associated Characteristics:

DBH Variation - variation in diameter of trees equal to or greater than 9" dbh. The variation is classed in L = low (+ 0-20%), M = moderate (+ 21-40%), and H = high (+ 41-100%).

Percent Dead/Broken Top - the percent of trees equal to or greater than 9" dbh. with dead or broken tops.

Probability of Down Wood - the probability that abundant down wood $\geq$ 9" diameter will be present. Probabilities are classed into L = low (+ 0-20%), M = moderate (+ 21-40%), and H = high (+ 41-100%).

Percent Decay - the percent of trees equal to or greater than 9" dbh with significant decay.

Tree Canopy Layers - an indication of the number or variation in numbers of tree layers that can be expected. SNGL = single layer; MLT = multiple layers.

Snags $\geq$ 9" - range in number of snags (dead standing trees) $\geq$ 9" diameter.

No. of Samples - this is the number of plots from the plot data base that met the screening criteria and are used in the old growth type descriptions.

TABLE 1 NORTHERN IDAHO ZONE OLD GROWTH TYPE CHARACTERISTICS *(2/05 errata edit)*

DESCRIPTION		MINIMUM CRITERIA			ASSOCIATED CHARACTERISTICS						
OLD GROWTH TYPE	HABITAT TYPE GROUP	MINIMUM AGE OF LARGE TREES	MINIMUM NUMBER TPA/DBH	MINIMUM BASAL AREA (FT^2/AC)	DBH VARIATION 2/	PERCENT DEAD/ BROKEN TOP 1/	PROBABILITY OF DOWN WOODY 2/	PER-CENT DECAY 1/	NUMBER CANOPY LAYERS 3/	SNAGS ≥9" DBH 1/	NUMBER OF SAMPLES
1 - PP, DF, L	A,B	150	8 ≥ 21"	40	M	0 - 30	L - M	0-8	SNGL/MLT	0 - 13	815
2 – LP	B,C,D,E,G,H,I,J,K	120	10 ≥ 13"	60	M	0-19	M	2-13	SNGL/MLT	1 - 37	875
3 - Y	C,C1, G1	150	3 ≥ 21"	80	M	7 - 10	H	9-34	SNGL/MLT	5	26
4A - DF, GF, L, SAF, WP, PP	C, C1,D,E	150	10 ≥ 21"	80	M	3 - 28	M	2 –33	SNGL/MLT	7 - 35	2,938
4B - DF,GF, L, WH, WP, PP	F,G,G1,H,I	150	10 ≥ 21"	120 / 80 (4)	M - H	0 - 22	M - H	1- 41	SNGL/MLT	0 - 33	8,069
5 – SAF,MAF	F,G, G1,H,I	150	10 ≥ 17"	80	H	5 - 36	H	5-28	MULTIPLE	6 - 36	4,275
6 – WBP	I, J, K	150	5 ≥ 13"	60 / 40 (5)	M	0 - 17	M	6-17	SNGL/MLT	11 - 42	43
7 – C	F,G,G1	150	10 ≥ 25" (6)	120	M	5 - 36	L - H	6-55	SNGL/MLT	6 - 47	5,865
8 – DF,L, SAF,MAF,WP	J	150	10 ≥ 17"	60	M	1 - 14	M - H	1-15	SNGL/MLT	3 - 40	890
9 – SAF,MAF	K	150	5 ≥ 13"	40	H	21 - 23	M	13-35	MULTI	11 - 13	26

1/ These values are not minimum criteria. They are the range of means for trees ≥9" DBH across plots within forests, forest types, or habitat type groups.

2/ These are not minimum criteria. They are Low, Moderate, and High probabilities of abundant large down woody material or variation in diameters based on stand condition expected to occur most frequently.

3/ Not a minimum criteria. Number of canopy layers can vary within an old growth type with age, relative abundance of different species and successional stage.

4/ In Old Growth Type 4B, 120 ft^2 applies to habitat type groups F, G, and G1, and 80 ft^2 of basal area applies to habitat type groups H & I.

5/ In whitebark pine forest type, 60 ft^2 of basal area applies to habitat type groups I and J, and 40 ft^2 applies to habitat type group K.

6/ In Old Growth Type 7, the 25" minimum DBH only applies to cedar trees; old trees of other species are evaluated with a minimum DBH appropriate for that species on these habitat types (21" for DF, GF, L, WH, WP, PP; and 17" for SAF, MAF)

CORRELATION WITH ADJACENT REGIONS

Old growth types were correlated across regional boundaries with Region 6 (Washington and Oregon) and Region 4 (southern Idaho and Wyoming). Meetings were held with regional representatives on June 11, 1991 in Spokane, Washington and on October 4, 1991 in Missoula, Montana. Most definitions correlated fairly well. Region 6 will use R-1's definitions for seral cover types in eastern Washington and Oregon. A summary of the notes is given in Appendix B.

USE OF OLD GROWTH TYPE DESCRIPTIONS

Forest stand composition and structure is a function of site physical characteristics (soil, climate, topography), the particular history of that site, the characteristics of the species that occupy the site and their interactions, and the physical and biological forces that affect the site during successional development. The rugged, mountainous topography of the Northern Region is overlain with a complex climate produced by the west to east intersection of the pacific Marine climate with the Great Plains Continental climate. There is great annual variation in both temperature and moisture, and there is a large amount of variation from year to year around the long term averages for any given date or month. There is also great variation in type and severity of disturbance mechanisms, both natural and man caused. The result of this variety of forces that shapes individual stands, is a wide variation in the resulting stand structures. No set of generated numbers can capture all the variation that may occur at any given age or stage in forest development.

Because of the great variation in old growth stand structures, no set of numbers can be relied upon to correctly classify every stand. In addition, the uncertainties of sampling and statistics introduce another need for caution in using stand data. The minimum criteria in the "tables of old growth type characteristics" are meant to be used as a screening device to select stands that may be suitable for management as old growth, and the associated characteristics are meant to be used as a guideline to evaluate initially selected stands. They are also meant to serve as a common set of terms for old growth inventories. Most stands that meet minimum criteria will be suitable old growth, but there will also be some stands that meet minimum criteria that will not be suitable old growth, and some old growth may be overlooked. **Do not accept or reject a stand as old growth based on the numbers alone; use the numbers as a guide.**

A stand dominated by trees of the age and size listed under minimum criteria is generally good potential old growth. The number of trees is meant as a guideline for how many trees it takes to produce older stand characteristics, and should not be used as an absolute. The large tree age listed under minimum criteria is meant to define the minimum age which we will consider old growth, but that age is difficult to measure because some of the oldest trees may be too rotten or too large to accurately age. For this and other reasons, although age is the single most valuable guide for determining when a stand is old growth, age is often the least reliable data in an inventory. Tree size generally increases as a tree ages, but stand density and mortality affect tree size. The associated characteristics listed in Table 1 through 3 are meant to be guidelines in evaluating stands. A stand should not be accepted or rejected as old growth simply on the basis of associated characteristics. The predominance of minimum criteria and associated characteristics, rather than a single number, generally will be an excellent guide. Be aware that the associated characteristics of "DBH variation" and "tree canopy layers" were only provided as a descriptor of what was most common in existing inventory data, and should not be used to decide whether a stand is really old growth. Use these numbers and descriptions as guides in applying the basic principle that old growth is a "late stage of stand development" . . . " dominated by old trees and related structural attributes."

Where stand examination data is available, this data may be compared to the old growth minimum criteria in Tables 1 through 3, by habitat type group and forest cover type. Run Code 22 on the Forest Service Region 1 "R1EDIT Menu" (available in all Forest Service Region 1 Data General computers in the R1EDIT Program Package) is designed to extract potential old growth stands from the R1EDIT stand exam data base. Run Code 22 is an interactive program that allows a user to specify a group of habitat types and forest cover types, and specify the minimum criteria of number of trees, minimum age, and minimum diameter. The program will then return a list of stands from the R1EDIT data base that meets the specified characteristics, and will give some summary data for each stand. A separate Run Code 22 extract will be needed for every combination of habitat types and forest cover types that has unique characteristics.

The minimum criteria are used to determine if a stand is potentially old growth. Where these values are clearly exceeded, a stand will usually be old growth. The associated structural characteristics may be useful in decision making in marginal cases, or in comparing relative resource values when making old growth evaluations.

In a few cases of multi-species stands, the forest cover type automatically assigned by the stand exam system (and stored in the TSMRS database), and the forest type calculated by Run Code 22 may both be misleading when trying to make an old growth determination. Sometimes, a dense understory of smaller and/or younger trees of one species may make up the plurality of basal area, while the big old trees may be composed of different species / species combination. For example, in a multi-species stand, cedar could be 25% of the stand basal area, and still be assigned the forest type, because it has more basal area than any other single species, but another species (or species combination) may make up most of the big old trees. In Northern Idaho, old cedar trees usually have a larger diameter than other species of the same age. For this reason, the minimum diameter for cedar old growth was set larger than for other species on the same habitat type. But, if a minimum DBH for cedar was applied to old trees of a different species, it might lead to inappropriate conclusions about whether or not the stand was old growth.

For this reason, when screening potential old growth stands, forest type needs to be calculated in a way that's relevant to old growth determination. Use the following methodology:

- For all forest types, assign old growth forest type based on the plurality of basal area in trees ≥ 9" only (this was plot data analyzed by the Northern Region Old Growth committees).
- In northern Idaho, if the Forest Type is cedar, use the 25" minimum DBH for the old cedar; but (consistent with rest of Table 1) use a 21" minimum DBH for DF, GF, L, WH, WP, PP; and a 17" minimum DBH for SAF & MAF old trees.

Other forest types may also very occasionally have situations like cedar, with the big old trees being a different species than the forest type. Because this is relatively uncommon with other forest types, it's best dealt with through individual stand assessment when doing project level analysis. When doing fine-scale project level assessments, detailed analysis of stand characteristics, and consideration of the site and landscape considerations discussed below all contribute to the best selection of potential old growth.

In addition to using old growth minimum criteria with the stand exam data base R1EDIT Menu, Run Code 22 for extracting potential old growth stands, additional Run Code 22 extracts with stepped down standards are recommended. These step down runs are useful to extract stands that are either close to being old growth, or are actually old growth, with an inclusion of younger or smaller trees that skews the data. This step down procedure may also identify old growth blocks within larger stands. Step down runs can be done with the minimum criteria backed off slightly (use 1" smaller minimum diameter, or 10 year lower age, or 1-2 fewer trees per acre; possibly do several iterations, each backing down 1 more step).

Because old trees are often rotten and difficult to age, it is recommended that 1 step down version of Run Code 11 be done with a zero age criteria to extract stands where this may be a factor. Careful further evaluation will be needed for any stands extracted with a zero age criteria, since many of these stands will not be old growth.

Where no in-place stand exam data exists, but a site was visited by a professional interdisciplinary team in previous environmental analysis, the notes and determinations of that interdisciplinary team may be used in deciding whether to consider the stand old growth. Be aware that some interdisciplinary teams may have allocated young stands of old growth to meet predetermined acreage targets, and some of their stands may not meet the type descriptions.

These old growth minimum criteria, associated characteristics, and descriptions were developed to apply to individual stands. When applying these standards, 3 things need to be remembered. First, these numbers represent averages and ranges that either existed in the inventories, or were assigned by professional judgment. While they are good guides, they are not absolute. Because of the innumerable combinations of site characteristics and historical factors that can occur, no set of numbers will correctly define every possible situation. The basic concept is that old growth should represent "the late stages of stand development . . . distinguished by old trees and related structural attributes."

The second point is that old growth is valuable for a whole host of resource reasons such as habitat for certain animal and plants, for aesthetics, for spiritual reasons, for environmental protection, for research purposes, for production of unique resources such as very large trees. Unusual natural communities, etc., the resource values associated with potential old growth stands need to be considered in making allocations.

The third point to bear in mind when evaluating old growth is that a stand's landscape position may be as important, or more important than any stand old growth attribute. The landscape is dynamic. We need to do more than draw lines to manage this dynamic system. Consider the size of old growth blocks (large blocks have special importance), their juxtaposition and connectivity with other old growth stands, their topographic position, their shapes, their edge, and their stand structure compared to neighboring stands. Stands are elements in dynamic landscape. We need to have representatives of the full range of natural variation, and manage the landscape mosaic as a whole in order to maintain a healthy and diverse systems.

At the same time, there may be some stands with trees so large or so old that they are unique. We should always maintain a good representation of these very old unique and outstanding stands, because they are irreplaceable within human life spans. Remember to value the truly unique and outstanding, wherever it may be.

OLD GROWTH FOREST TYPE DESCRIPTIONS

NORTH IDAHO ZONE:
Old Growth Type 1
Ponderosa pine, Douglas-fir, Western Larch Forest Types on warm, dry environments

Habitat Type Groups

Ponderosa pine and Douglas-fir habitat types
North Idaho Zone Groups A and B
This type is moderately well represented across all of the 3 National Forests, but is most abundant in the southern part of the North Idaho Zone. This zone includes the Clearwater, Idaho Panhandle and the Nez Perce National Forests.

Forest Types

Douglas-fir and ponderosa pine are major forest types. Western larch is a minor forest type.

Minimum Characteristics

8 trees per acre 21 inches DBH or more
Large trees 150 years old or more
Basal area 40 ft^2 per acre or more
Sample size: 815 Plots

Site Description

This old growth type occupies warm, dry environments on predominantly steep southerly aspects at elevations from 1000 to 6000 feet. It is on north aspects at lowest elevations. Ponderosa pine is the climax dominant on the driest sites and Douglas-fir on moister sites in these groups. Bunchgrass dominated understories are the least productive, typically with relatively low stocking. Habitat types where shrubs dominate the understory can support greater tree stocking. Prior to 1900, cool underburns at intervals of 5 to 25 years promoted open stands, while hotter stand replacing fires occurred at intervals of 150 to more than 300 years.

Vegetation Characteristics

This type may be single or multistoried. A single canopy layer is most common during seral stages, or in climax ponderosa pine. Large ponderosa pine dominate ponderosa pine habitat types under seral and climax conditions, and pine is a seral dominant on Douglas-fir habitat types. Douglas-fir may be a seral or climax dominant on Douglas-fir habitat types. Larch is a seral dominant on the more moist Douglas-fir habitat types. This old growth type can maintain old growth characteristics for moderate periods in seral stands and for long periods where ponderosa pine or Douglas-fir are climax on the site.

The average age of the largest trees in this type is 225 years, with a range from 208 to 256. Individual trees may reach an estimated age of 475 years. There are an average of 24 trees per acre 21 inches DBH or more. The range of means across forests and forest types is from 18 to 20 on habitat types with dry bunchgrass understories and 19 to 27 on habitat types with shrub understories. The average basal area is 122 ft^2 per acre on sites with bunchgrass understories. The range is 89 to 124 ft^2. On moister sites with shrub understories, the average basal area is 164 ft^2 per acre and ranges from 147 to 193 ft^2.

The average number of dead standing trees 9 inches or more DBH is 5 with a range of 0 to 13. The average percent of trees 9 inches or more DBH with dead or broken tops is 9 with a range of 0 to 30 in means across forests and forest types. The average percent of trees showing decay is 6, with a range of 0 to 8. The probability of rotten, down log pieces 9 inches or more in diameter is low to moderate. Average litter and duff depth is 1 inch or less.

NORTH IDAHO ZONE:
Old Growth Type Code 2
Lodgepole pine forest type, on cool and cold environments

Habitat Types, Groups, and Geographic Distribution
Douglas-fir, grand fir, western red cedar, mountain hemlock, and subalpine fir habitat types. Subalpine fir and mountain hemlock habitat types with clintonia or menziensia in the understory are best represented.
North Idaho Zone Groups B, C, D, E, G, H, I, J, K
This type is well represented across all of the 3 National Forests in this zone. These Forests include the Clearwater, Idaho Panhandle and the Nez Perce.

Forest Types
Lodgepole pine

Minimum Characteristics
10 trees per acre 13 inches DBH or more
Large trees 120 years old or more
Basal area 60 ft^2 per acre or more
Sample size: 875 plots

Site Description
This old growth type occupies cool and cold environments on all aspects at elevations from 2000 to 7000 feet or more. It is in areas of cold air impoundment at lowest elevations. Douglas-fir is the climax dominant on the driest sites, grand fir on cool, moist sites, and subalpine fir on cold moist sites in these groups. Western hemlock and western red cedar are climax on cool sites that are more moist than those that support grand fir. Bluejoint, grouse whortleberry and pinegrass dominated understories are the least productive, typically with relatively low stocking. Habitat types where clintonia, wild ginger, or menziesia dominate the understory are more productive and can support greater tree stocking. Prior to 1900, repeated fires at less than 100 to 150 years favored the occurrence of large stands of nearly pure lodgepole pine. These pure stands are frequently overstocked and potential centers for disease and insect epidemics.

Vegetation Characteristics
This type may be single or multistoried. A single canopy layer is most common in stands of pure lodgepole pine. Multiple canopy layers are more common in stands of lodgepole pine and large trees of other seral species, such as Douglas-fir. Large lodgepole pine dominate these several habitat types where cold and frequent fire favor its occurrence as a seral species. This old growth type can maintain old growth characteristics for short periods until it is replaced by late seral or climax species.

The average age of the largest trees in this type is 173 years, with a range from 151 to 194. Individual trees of more long lived species may reach an estimated age of 347 years. There are an average of 81 trees per acre 13 inches DBH or more. The range of means across forests and forest types is from 15 to 64 on Douglas-fir, grand fir, and subalpine fir habitat types with beargrass or grouse whortleberry understories to 192 on moist subalpine fir habitat types with clintonia or menziesia understories. The average basal area is 171 ft^2 per acre. The range is 148 to 215 ft^2. Low basal areas are associated with the drier and colder environments in this old growth type.

The average number of dead standing trees 9 inches or more DBH is 24 with a range of 1 to 37. The average percent of trees 9 inches or more DBH with dead or broken tops is 9 with a range of 0 to 19 in means across forests and forest types. The average percent of trees showing decay is 7, with a range of 2 to 13. The probability of rotten down log pieces 9 inches or more in diameter is moderate. Average litter and duff depth is 1 to 2 inches.

Undescribed Types
Lodgepole pine forest type on very cold or droughty environments have been described in a few plots. Habitat Type Group K is the most harsh of the subalpine fir series. The minimum basal area requirement should be strongly considered here in determining whether there is really a lodgepole old growth stand.

NORTH IDAHO ZONE:
Old Growth Type Code 3
Pacific yew forest type on cool, moderately moist environments

Habitat Types, Groups, and Geographic Distribution

Grand fir habitat type phases with Pacific yew in the understory and grand fir/arrowleaf groundsel
North Idaho Zone Groups C, C1, and G1.
This type is generally limited in occurrence to the Nez Perce National Forest in the North Idaho Zone. These Forests also include the Clearwater and Idaho Panhandle, and infrequently it may appear here, usually on a G1 habitat type.

Forest Types

Pacific yew

Minimum Characteristics

3 trees per acre greater than 21 inches DBH
Large trees 150 years old or more
Basal area 80 ft^2 per acre or more
Sample size: 26 plots

Site Description

This old growth type occupies cool, moderately moist bottomlands and toe slopes as low as 2000 feet elevation, and is on moderate to steep uplands in warm protected exposures and ridge-top benches from 4000 to 5800 feet elevation. It seldom occurs in extensive stands. Grand fir is considered to be the climax tree species, but in this old growth type, Pacific yew is dominant. It is more shade tolerant and, in the absence of fire for many years, could dominate larger areas. Protection from frequent fire by topographic or climatic factors is required for the occurrence of this type.

Vegetation Characteristics

This type may be single or multistoried. A single canopy layer occurs in climax stands, when Pacific yew forms the only tree layer. Multistoried canopies occur when Pacific yew occurs with taller grand fir, or, less frequently, late seral Engelmann spruce. This old growth type can maintain old growth characteristics for long periods in the absence of fire.

The average age of the largest trees of species other than yew in this type is 205 years, with a range from 195 to 209. Individual trees may reach an estimated age of 326 years. There are an average of 13 trees per acre 21 inches DBH or more. These are usually grand fir. The range of means across forests and forest types is 12 to 14. The average basal area is 205 ft^2 per acre.

The average number of dead standing trees 9 inches or more DBH is 5 per acre. The average percent of trees 9 inches or more DBH with dead or broken tops is 8 with a range of 7 to 10. The average percent of trees showing decay is 26, with a range of 9 to 34. The probability of rotten, down log pieces 9 inches or more in diameter is high. Average litter and duff depth is 2 to 4 inches.

Undescribed Types

Pacific yew forest type on western red cedar habitat types with Pacific yew understories (Habitat Type group G1), may occur, but very infrequently. No data are available for these sites. They are currently expected to meet the minimum characteristics described above.

NORTH IDAHO ZONE:
Old Growth Type Codes 4A and 4B
Douglas-fir, grand fir, western larch, Engelmann spruce/subalpine fir, western hemlock, western white pine, and ponderosa pine forest types on cool, moist environments.

Habitat Types, Groups, and Geographic Distribution
All grand fir, western hemlock habitat types, western red cedar habitat types and the warmer and moister subalpine fir and mountain hemlock habitat types. Western red cedar and western hemlock habitat types with oak fern understories and grand fir with beargrass or twinflower understories are best represented.

Old Growth Type 4A is composed of ponderosa pine, Douglas-fir, grand fir, western larch, subalpine fir/ Engelmann spruce, and western white pine forest types on North Idaho Zone Habitat Type Groups C, C1, D, E (grand fir series).

Old Growth Type 4B is composed of ponderosa pine, Douglas-fir, grand fir, western white pine, and western hemlock forest types on North Idaho Habitat Type Groups F, G, G1, H, I (cedar, hemlock, and moist subalpine fir and mountain hemlock habitat type series).

These types are well represented across all of the 3 National Forests in this zone, but grand fir habitat types are more abundant on the Nez Perce, and cedar and hemlock habitat types are more abundant on the Clearwater and Idaho Panhandle National Forest.

Forest Types
Douglas-fir and grand fir are major forest types. Western larch, ponderosa pine, Engelmann spruce/subalpine fir, western hemlock and western white pine are less well represented.

Minimum Characteristics
10 trees per acre 21 inches DBH or more
Large trees 150 years old or more
Basal area: 80 ft^2 per acre or more for all OG Type 4A, and for Habitat Type Groups H and I on OG Type 4B;
120 ft^2 per acre or more for Habitat Types F, G, and G1 on OG Type 4B
Sample size: OG Type 4A: 2,938 plots;
OG Type 4B: 8,069 plots

Site Description
This old growth type occupies moist and cool environments on all aspects and elevations from 1400 feet along stream bottoms to 7300 feet on sheltered aspects. Grand fir is the climax dominant on the driest sites, and subalpine fir and mountain hemlock on the coldest. Western hemlock and western red cedar are climax on cool sites that are more moist than grand fir climaxes, and warmer than subalpine fir climaxes. Cedar and western hemlock habitat types are the most productive and can support greater tree stocking. Prior to 1900, infrequent stand replacing wildfires favored development of long lived seral and climax stands on cedar and western hemlock sites. Moist mountain hemlock and subalpine fir habitat types also have fire intervals of 200 years or more, and a harsher environment favorable to fewer seral species. More frequent fires in grand fir habitat types favor a greater number of seral species.

Vegetation Characteristics
The following descriptions are for all of Old Growth Types 4A and 4B combined. The range of data values of various associated characteristics for Type 4A or 4B separately are shown in Table 1. Even in their associated characteristics these two subtypes are extremely similar, and they are have identical minimum characteristics (except for basal area). They are separated primarily because the forest types and minimum basal areas differ slightly by habitat type group.

These types may be single or multistoried. A single canopy layer is most common in stands of pure Douglas-fir, larch or ponderosa pine. Multiple canopy layers are more common in late seral stands as climax tree species grow up beneath a seral overstory, or in climax stands with shade tolerant species in both overstory and understory. On cedar and western hemlock habitat types, Douglas-fir, grand fir, and white pine are common seral forest types. Old growth white pine has become increasingly rare due to timber harvest and mortality from blister rust. On grand fir habitat types, Douglas-fir is the most common seral forest type, but grand fir may become established immediately after disturbance on all but the driest sites. Ponderosa pine is a seral species on cedar and grand fir habitat types. Douglas-fir and western larch can occur as seral species on almost all of the habitat type groups in this old growth type. This old growth type can maintain old growth characteristics for moderate periods in forest types of seral species, and for long periods of forest types of climax species in the absence of fire.

The average age of the largest trees in this type is 210 years, with a range from 160 to 264. Individual trees of long lived species like ponderosa pine, western larch, or western red cedar may reach an age of 400 to 700 years. Larch, ponderosa pine or western hemlock forest types have an average age of more than 200 years. There are an average of 27 trees per acre 21 inches DBH or more. The range of means across forests and forest types is from 12 to 53. Ponderosa pine and larch forest types usually support the fewest large trees per acre, averaging 12 to 33. The average basal area is 210 ft^2 per acre. The range is 160 to 270 ft^2. Basal areas in the low part of the range are most often associated with larch and ponderosa pine forest types, and subalpine fir and mountain hemlock habitat type groups (Habitat Type Groups H and I).

The average number of dead standing trees 9 inches or more DBH is 14 with a range of 0 to 35. Variability is highest in the grand fir forest type. White pine forest type average 24 snags per acre because of blister rust mortality. Ponderosa pine forest types average only 7. The average percent of trees 9 inches or more DBH with dead or broken tops is 7 with a range of 0 to 28 in means across forests and forest types. Ponderosa pine and larch forest types are the most variable. The white pine forest type averages only 4 percent dead and broken tops. The average percent of trees showing decay is 12, with a range of 1 to 41. Grand fir, subalpine fir and western hemlock forest types show the greatest decay, and white pine the least. Cedar and western hemlock habitat type groups (F, G, and G1) show the most decay across all forest types. The probability of rotten down log pieces 9 inches or more in diameter is moderate in early seral stands and high in late seral or climax stands. Average litter and duff depth is 1 to 2 inches.

NORTH IDAHO ZONE:
Old Growth Type Code 5
Engelmann spruce/subalpine fir, mountain hemlock/subalpine fir forest types on cold, moist environments

Habitat Types, Groups, and Geographic Distribution

Moist subalpine fir and mountain hemlock habitat types, and the colder western hemlock and western red cedar habitat types. Subalpine fir or mountain hemlock habitat types with clintonia or menziesia in the understory are best represented.
North Idaho Zone Groups F, G, H, I
This type is well represented across all of the 3 National Forests in this zone, but is most extensive on cold subalpine fir habitat types (Group I) on the Idaho Panhandle and Clearwater National Forests. This zone includes the Clearwater, Idaho Panhandle and Nez Perce National Forests.

Forest Types

Engelmann spruce/subalpine fir, mountain hemlock/subalpine fir

Minimum Characteristics

10 trees per acre 17 inches DBH or more
Large trees 150 years old or more
Basal area 80 ft^2 per acre or more
Sample size: 4275 plots

Site Description

This old growth type occupies moist and cold environments from 4000 feet in frost pocket situations to 7300 feet on sheltered northerly aspects. Subalpine fir and mountain hemlock are the climax dominants on the coldest sites. Mountain hemlock is limited to moist cold sites from the Middle Fork of the Clearwater River and northward. Western hemlock and western red cedar are climax dominants on warmer, lower elevation sites in the northern part of the zone. Cedar and western hemlock habitat types are the most productive and can support greater tree stocking. Prior to 1900, infrequent stand replacing wildfires in moist subalpine fir habitat types at intervals of 100 years or more favored growth of the shade tolerant climax species. Frost tolerant subalpine fir, western hemlock and Engelmann spruce are also important seral species when disturbance creates openings in low lying areas that impound cold air.

Vegetation Characteristics

This type is most often multistoried. A single canopy layer can occur in stands of pure Engelmann spruce in early seral stages. Multiple canopy layers are common in late seral stands as climax tree species grow up beneath a seral overstory, or in climax stands with shade tolerant subalpine fir or mountain hemlock in both overstory and understory. Engelmann spruce is less shade tolerant, but is a common seral associate. This old growth type can maintain old growth characteristics for long periods in the absence of fire.

The average age of the largest trees in this type is 202 years, with a range from 188 to 220. Subalpine fir and spruce on wet cedar habitat types (Group F) develop rot early and seldom reach ages of more than 190 years. Individual trees of other more long lived species may reach an age of 400 to 500 years. There are an average of 39 trees per acre 17 inches DBH or more. The range of means across forests and forest types is from 34 to 51. The wettest subalpine fir habitat types (Group H) support the most large trees per acre, averaging 42 to 51. The average basal area is 184 ft^2 per acre. The range is 165 to 229 ft^2.

The average number of dead standing trees 9 inches or more DBH is 18 with a range of 6 to 36. Wet subalpine fir habitat types (Group H) average 22 snags per acre. The average percent of trees 9 inches or more DBH with dead or broken tops is 8 with a range of 5 to 36 in means across forests and forest types. Wet subalpine fir habitat types average 22 percent. The average percent of trees showing decay is 12, with a range of 5 to 28. Wet subalpine fir or western red cedar habitat types (Groups H, F) show the greatest decay, averaging 24 and 27 percent. The probability of rotten down log pieces 9 inches or more in diameter is high. Average litter and duff depth is about 2 inches.

NORTH IDAHO ZONE:
Old Growth Type Code 6
Whitebark pine forest type on cold environments

Habitat Types, Groups, and Geographic Distribution

Subalpine fir and mountain hemlock habitat types
North Idaho Zone Groups I, J, K
This type is of limited extent on all of the 3 National Forests in this zone, but has been sampled only on the Idaho Panhandle and Nez Perce. These Forests include the Clearwater, Idaho Panhandle and the Nez Perce.

Forest Types

Whitebark pine

Minimum Characteristics

5 trees per acre 13 inches DBH or more
Large trees 150 years old or more
Basal area: 60 ft^2 per acre or more for Habitat Type Groups I and J;
40 ft^2 per acre or more for Habitat Type Group K
Sample size: 43 plots

Site Description

This old growth type occupies moist and dry cold upper elevation environments on all aspects at elevations from 5500 to 7600 feet or more. Subalpine fir is the climax dominant on sites too dry to support mountain hemlock. Mountain hemlock is the climax dominant on cold moist sites from the Middle Fork Clearwater River drainage and northward. Habitat types with menziesia and clintonia dominated understories (Habitat Type group I) are the most productive and can support greater tree stocking. Prior to 1900, repeated fires at intervals of less than 100 to 150 years favored the occurrence of whitebark pine stands. Fire suppression has resulted in conversion of many stands to subalpine fir and mountain pine beetle epidemics have increased fuel loadings to whitebark pine stands with increased potential for higher intensity fires.

Vegetation Characteristics

This type may be single or multistoried. A single canopy layer is most common in stands of pure whitebark pine. Multiple canopy layers are more common in stands of whitebark pine and understory trees of more shade tolerant species, like Engelmann spruce or subalpine fir. Large whitebark pine dominate these habitat types where cold and frequent fire favor its occurrence as a seral species. This old growth type can maintain old growth characteristics for short periods until it is replaced by late seral Engelmann spruce or climax subalpine fir or mountain hemlock.

The average age of the largest trees in this type is 276 years, with a range from 183 to 295. Individual trees may reach an estimated age of 500 years. There are an average of 54 trees per acre 13 inches DBH or more. The range of means across forests and forest types is from 32 to 66. Lower values in the range are associated with drier environments (Habitat Type group J). The average basal area is 138 ft^2 per acre. The range is 103 to 170 ft^2. Lower basal areas are associated with drier environments in this old growth type.

The average number of dead standing trees 9 inches or more DBH is 35 with a range of 11 to 42. The average percent of trees 9 inches or more DBH with dead or broken tops is 7 with a range of 0 to 17 in means across forests and forest types. The average percent of trees showing decay is 9, with a range of 6 to 17. The probability of rotten down log pieces 9 inches or more in diameter is moderate. Average litter and duff depth is 1 to 2 inches.

Types Currently Lacking Data

The whitebark pine forest type on harsh, high elevation habitat types (Habitat Type group K) is known to occur, but has not been sampled. This old growth type is expected to be similar to the type described above, but the minimum basal area has been described as 40 ft^2 per acre instead of 60.

NORTH IDAHO ZONE:
Old Growth Type Code 7
Western red cedar forest type on moist environments

Habitat Types, Groups and Geographic Distribution

Western red cedar and western hemlock habitat types. Western red cedar and western hemlock habitat types with oak fern in the understory are best represented, but a variety of cedar and hemlock habitat types are present.
North Idaho Zone Groups F, G, G1
This type is well represented on the Idaho Panhandle and Clearwater National Forests and occurs on the Nez Perce National Forest primarily in the Selway River drainage. Forests in the North Idaho zone include the Clearwater, Idaho Panhandle and the Nez Perce.

Forest Types

Western red cedar

Minimum Characteristics

10 trees per acre: 25 inches DBH or more for cedar;
21 inches DBH or more for old DF, GF, L, WH, WP, or PP;
17" inches DBH or more for old SAF or MAF.
Large trees 150 years old or more
Basal area 120 ft^2 per acre or more
Sample size: 5865 plots

Site Description

This old growth type occupies moist environments from 1500 to 5500 feet elevation on all aspects and slope positions that are protected from summer drought. Western hemlock is the climax dominant on sites above about 2500 feet, in areas of adequate summer moisture from the North Fork of the Clearwater River northward. Western red cedar is the climax dominant on sites slightly more prone to summer drought or winter cold. These sites are highly productive and can grow larger trees and support higher basal areas than other habitat types in the North Idaho Zone. Infrequent stand replacing wildfires at more than 200 year intervals favor development of long lived seral and climax stands on these sites.

Vegetation Characteristics

This type may be single or multistoried. A single canopy layer is most common in stands of pure western hemlock or cedar that can develop rapidly after disturbance on favorable sites. Multiple canopy layers are more common in climax conditions where tree mortality has created openings that have filled with young trees. Large western red cedar may be a seral dominant on western hemlock sites. This old growth type can maintain old growth characteristics for long periods in the absence of fire.

The minimum diameter for this type is meant to apply when both the forest type and the actual large old trees are cedar. Because of the way forest type is computed (usually plurality of basal area), the forest type may show as cedar, but in some cases the large old trees may be a different species. In that case, use the minimum criteria appropriate on these habitat types for the species of the large old trees being considered.

The average age of the largest trees in this type is 222 years, with a range from 184 to 261. Individual trees may reach an estimated age of 800 years. There are an average of 24 trees per acre 25 inches DBH or more. The range of means across forests and forest types is from 23 to 37. The average basal area is 285 ft^2 per acre. The range is 268 to 330 ft^2.

The average number of dead standing trees 9 inches or more DBH is 12 with a range of 6 to 47. The greatest variability is in cedar habitat types with Pacific yew in the understory (Habitat Type group G1). The average percent of trees 9 inches or more DBH with dead or broken tops is 6 with a range of 5 to 36 in means across forests and forest types. Percent dead and broken tops is also most variable in cedar habitat types with Pacific yew in the understory, ranging from 10 to 36 percent. The average percent of trees showing decay is 13, with a range of 6 to 55. Highest incidence of decay is in the cedar habitat types with fern understories or with Pacific yew understories, ranging from 27 to 55 percent. The probability of rotten down log pieces 9 inches or more in diameter ranges from low to high depending upon successional pathways, watershed-scale disturbance history, and topographic position. Average litter and duff depth is about 2 to 3 inches.

NORTH IDAHO ZONE:
Old Growth Type Code 8
Douglas-fir, western larch, Engelmann spruce/subalpine fir, mountain hemlock/subalpine fir, and white pine forest types on cold, moderately dry environments.

Habitat Types, Groups, and Geographic Distribution

Subalpine fir and mountain hemlock habitat types with beargrass, dwarf huckleberry, blue huckleberry, beargrass, grouse whortleberry, or pinegrass understories.
North Idaho Zone Groups J
This type is moderately well represented across all of the 3 National Forests in the North Idaho Zone. These Forests include the Clearwater, Idaho Panhandle and the Nez Perce.

Forest Types

Engelmann spruce/subalpine fir, mountain hemlock/subalpine fir, and Douglas-fir are major cover types. Western larch and western white pine are minor cover types.

Minimum Characteristics

10 trees per acre 17 inches DBH or more
Large trees 150 years old or more
Basal Area 60 ft^2 per acre or more
Sample size: 890 plots

Site Description

This old growth type occupies cold and moderately dry environments from 5100 feet in depressions where cold air is impounded to 7300 feet on warm exposures with well drained, coarse textured soils. Mountain hemlock is the climax dominant on cold, slightly moister sites from the Middle Fork Clearwater River drainage and northward. Mountain hemlock sites are slightly more productive. Subalpine fir is the climax dominant sites too dry to support mountain hemlock. Prior to 1900, repeated fires at intervals of 100 to 200 years favored the occurrence of stands of nearly pure Douglas-fir, western larch, or white pine. Subalpine fir or mountain hemlock may rapidly reestablish on mountain hemlock sites if seed is available.

Vegetation Characteristics

This type may be single or multistoried. A single canopy layer is most common in seral stands of Douglas-fir, larch or white pine. Multiple canopy layers are more common in late seral stands as climax tree species grow up beneath a seral overstory, or in climax stands with shade tolerant species in both overstory and understory. Douglas-fir, larch, and Engelmann spruce are seral on subalpine fir habitat types. Subalpine fir is the most common seral species on mountain hemlock sites, but Engelmann spruce, Douglas-fir, larch, and white pine may also occur. Douglas-fir, larch, and white pine forest types can maintain old growth characteristics for moderate periods until they are replaced by late seral Engelmann spruce or climax subalpine fir or mountain hemlock. Subalpine fir and Engelmann spruce forest types can maintain old growth characteristics for long periods in the absence of fire.

The average age of the largest trees in this type is 201 years, with a range from 164 to 275. Individual trees of more long lived species may reach an age of 400 to 500 years. Larch forest type has an average age of 226 to 237 years. There are an average of 34 trees per acre 17 inches DBH or more. The range of means across forests and forest types is from 13 to 54. The white pine forest type is most variable because of stand openings created by blister rust mortality. The average basal area is 186 ft^2 per acre. The range is 128 to 216 ft^2. The white pine forest type is highly variable.

The average number of dead standing trees 9 inches or more DBH is 23 with a range of 3 to 40. The larch forest type usually has the fewest snags (3 to 10 per acre) and the white pine forest type the most (34 to 40). The average percent of trees 9 inches or more DBH with dead or broken tops is 8 with a range of 1 to 14 in means across forests and forest types. The average percent of trees showing decay is 12, with a range of 1 to 15. The Engelmann spruce/subalpine fir and mountain hemlock/subalpine fir forest types have the highest incidence of decay, but all are highly variable. The probability of rotten, down log pieces 9 inches or more in diameter is moderate in Douglas-fir, larch and white pine forest types and high in Engelmann spruce/subalpine fir and mountain hemlock/subalpine fir forest types.

NORTH IDAHO ZONE:
Old Growth Type Code 9
Engelmann spruce/subalpine fir and mountain hemlock/subalpine fir forest types on very cold, harsh environments.

Habitat Types, Groups, and Geographic Distribution

Subalpine fir and mountain hemlock habitat types with woodrush understories, alpine larch/subalpine fir and whitebark pine/subalpine fir habitat types
North Idaho Zone Group K
This type is limited to the highest elevation areas of the 3 National Forests in the North Idaho Zone, but has been sampled only on the Clearwater and Idaho Panhandle National Forests. This zone includes the Clearwater, Idaho Panhandle, and Nez Perce National Forests.

Forest Types

Engelmann spruce/subalpine fir, mountain hemlock/subalpine fir

Minimum Characteristics

5 trees per acre 13 inches DBH or more
Large trees 150 years old or more
Basal Area 40 ft^2 per acre or more
Sample size: 26 plots

Site Description

This old growth type occupies very cold and severe climates at elevations of 6000 feet in the north part of the zone to 8000 feet in the south. Snowpacks remain long into summer and trees grow deformed by snow and wind. Subalpine fir is the climax dominant on sites too dry to support mountain hemlock and at lower elevations than alpine larch and whitebark pine. Mountain hemlock is limited to moist cold sites from the Middle Fork of the Clearwater River and northward. Alpine larch/subalpine fir are incidental habitat types on the highest peaks of the Bitterroot Mountains. Whitebark pine/subalpine fir habitat types are a mosaic of timberline sites with more wind and higher snowpacks than subalpine fir habitat types. Fire suppression since 1900 has resulted in the conversion of many stands once dominated by seral whitebark pine to Engelmann spruce/subalpine fir and mountain hemlock/subalpine fir.

Vegetation Characteristics

This type is most often multistoried and trees tend to grow in clusters. A single canopy layer can occur in stands of pure Engelmann spruce, mountain hemlock or subalpine fir in early seral stages. Multiple canopy layers are common in late seral stands as climax tree species grow up beneath a seral overstory, or in climax stands with shade tolerant subalpine fir or mountain hemlock in both overstory and understory. Subalpine fir is a climax dominant on subalpine fir habitat types and seral on mountain hemlock. It usually grows in close association with whitebark pine and alpine larch on those habitat types. Mountain hemlock is climax on mountain hemlock habitat types and may rapidly reestablish on these sites after disturbance. Engelmann spruce is less shade tolerant, but is a common seral associate. This old growth type can maintain old growth characteristics for long periods in the absence of fire.

The average age of the largest trees in this type is 193 years, with a range from 190 to 195. In the limited sample, individual trees seldom reached an age of 300 years. There are an average of 79 trees per acre 13 inches DBH or more. The range of means across forests and forest types is from 77 to 81. The average basal area is 209 ft^2 per acre. The range is 176 to 223 ft^2. The number of large trees per acre and the basal area from the limited sample are higher than expected, and may not reflect the many openings in stands of this old growth type.

The average number of dead standing trees 9 inches or more DBH is 11 with a range of 11 to 13. The average percent of trees 9 inches or more DBH with dead or broken tops is 22 with a range of 21 to 23 in means across forests. This high amount of dead and broken tops is associated with snow and wind damage. The average percent of trees showing decay is 28, with a range of 13 to 35. The probability of rotten, down log pieces 9 inches or more in diameter is moderate. Average litter and duff depth is 1 to 2 inches.

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APPENDIX: Habitat Type Groups for Northern Idaho

Habitat Type Group	Group Code	Alpha Code	Numeric Code
	A	PIPO/AGSP	130
		PIPO/FEID	140
		PIPO/SYAL	170
		PSME/AGSP	210
		PSME/FEID	220
	B	PIPO/PHMA	190
		PSME/PHMA	260
		PSME/PHMA-SMST	263
		PSME/PHMA-PHMA	261
		PSME/SYAL	310
		PSME/VAGL	280
		PSME/VACA	250
		PSME/CARU	320
		PSME/CARU-ARUV	322
		PSME/CARU-CARU	323
		PSME/CAGE	330
		PSME/SPBE	340
	C	ABGR/SETR	529
		ABGR/ASCA	516
		ABGR/ASCA-MEFE	518
		ABGR/ASCA-ASCA	517
		ABGR/CLUN	520
		ABGR/CLUN-MEFE	525
		ABGR/CLUN-PHMA	524
		ABGR/CLUN-CLUN	521
	C1	ABGR/ASCA-TABR	519
		ABGR/CLUN-TABR	526
	D	ABGR/LIBO	590
		ABGR/LIBO-XETE	592
		ABGR/LIBO-LIBO	591
		ABGR/VAGL	515
		ABGR/XETE	510
		ABGR/XETE-COOC	511
		ABGR/XETE-VAGL	512
		ABGR/CLUN-XETE	523
	E	ABGR/PHMA	506
		ABGR/PHMA-COOC	507

Habitat Type Group	Group Code	Alpha Code	Numeric Code
		ABGR/PHMA-PHMA	508
		ABGR/SPBE	505
	F	THPL/OPHO	550
		THPL/ATFI	540
		THPL/ATFI-ADPE	541
		THPL/ATFI-ATFI	542
		THPL/ADPE	560
	G	THPL/GYDR	555
		THPL/ASCA	545
		THPL/ASCA-MEFE	547
		THPL/ASCA-ASCA	546
		THPL/CLUN	530
		THPL/CLUN-MEFE	533
		THPL/CLUN-CLUN	531
		THPL/CLUN-XETE	534
		TSHE/GYDR	565
		TSHE/ASCA	575
		TSHE/ASCA-ARNU	576
		TSHE/ASCA-MEFE	577
		TSHE/ASCA-ASCA	578
		TSHE/CLUN	570
		TSHE/CLUN-ARNU	572
		TSHE/CLUN-MEFE	574
		TSHE/CLUN-CLUN	571
		TSHE/CLUN-XETE	573
	G1	THPL/CLUN-TABR	535
		THPL/ASCA-TABR	548
	H	ABLA/STAM	635
		ABLA/STAM-MEFE	636
		ABLA/STAM-LICA	637
		ABLA/CACA	650
		ABLA/CACA-LEGL	655
		ABLA/CACA-VACA	654
		ABLA/CACA-LICA	652
		ABLA/CACA-CACA	651
		TSME/STAM	675
		TSME/STAM-LUHI	676
		TSME/STAM-MEFE	677
	I	ABLA/CLUN	620

Habitat Type Group	Group Code	Alpha Code	Numeric Code
		ABLA/CLUN-CLUN	621
		ABLA/CLUN-XETE	624
		ABLA/CLUN-MEFE	625
		ABLA/MEFE	670
		ABLA/MEFE-LUHI	672
		ABLA/MEFE-VASC	674
		ABLA/MEFE-COOC	671
		ABLA/MEFE-XETE	673
		TSME/CLUN	685
		TSME/CLUN-MEFE	686
		TSME/CLUN-XETE	687
		TSME/MEFE	680
		TSME/MEFE-LUHI	681
		TSME/MEFE-XETE	682
		TSHE/MEFE	579
	J	ABLA/XETE	690
		ABLA/XETE-LUHI	694
		ABLA/XETE-VASC	692
		ABLA/XETE-COOC	693
		ABLA/XETE-VAGL	691
		ABLA/VAGL	720
		ABLA/CARU	750
		ABLA/VASC	730
		ABLA/VACA	640
		TSME/XETE	710
		TSME/XETE-LUHI	711
		TSME/XETE-VASC	713
		TSME/XETE-XETE	712
	K	ABLA-LUHI	830
		TSME/LUHI	840
		PICO/VACA	920
		PICO/XETE	925
		PICO/VASC	940
		LALY-ABLA	860
		PIAL-ABLA	850

APPENDIX D – COEUR D'ALENE NATIVE FISH STRATEGY (CNFISH)

Appendix D: CNFish Strategy – INFISH Crosswalk

In 2002, the BLM Idaho State Director signed a memorandum of understanding with several other federal agencies, agreeing to implement the Interior Columbia Basin Ecosystem Management Project Strategy. This strategy specifies that "until administrative unit plans [RMPs] are amended or revised utilizing the ICBEMP Science in this Strategy, management will continue under current plans. This will include interim PACFISH, INFISH [Inland Native Fish Strategy] direction..." INFISH provides interim direction for protecting resident fish populations and habitat in Idaho, western Montana, eastern Washington, and eastern Oregon.

The development of the Coeur d'Alene RMP meets the specific criteria for modifying or adapting INFISH direction. The BLM Coeur d'Alene Field Office conducted a thorough analysis of INFISH and developed direction that would be applicable to management of BLM-administered public lands within the planning area. The table below is a crosswalk comparing key components of the Inland Native Fish Strategy (INFISH) with direction that will be incorporated into the Coeur d'Alene Draft RMP (CdA Native Fish Strategy or CNFISH).

In 2004, a memorandum was issued by the BLM, FS, FWS, EPA and NOAA Fisheries to transmit a document titled "A Framework for Incorporating the Aquatic and Riparian Component of the Interior Columbia Basin Strategy into BLM and Forest Service Plan Revisions (Framework)". This document provides direction for six component addressing aquatic and riparian management to be incorporated into revised plans. The components and how they are addressed in the Coeur d'Alene Draft RMP are as follows:

1. **Riparian Conservation Areas** (RCA) are areas of particular value for aquatic conservation and where riparian-dependent resources receive management emphasis. RCAs are delineated in the CNFISH table below. Standards and guidelines for actions within RCAs are also found in the table below.

2. **Protection of Population Strongholds for Listed or Proposed Species and Narrow Endemics** is addressed in Appendix E: Conservation and Restoration Watersheds.

3. **Multiscale Analysis** is addressed in the CNFISH Strategy table below under Watershed Analysis. The potential analysis scales are basin, subbasin, watershed and project; analysis at the appropriate scale provides the context needed for decision making.

4. **Restoration Priorities and Guidance** can be found in Appendix E: Conservation and Restoration Watersheds.

5. **Management Direction (such as desired conditions or objectives)** is found in the CNFISH Strategy table below under Riparian Management Objectives (RMOs). Qualitative and quantitative descriptions of desired watershed, riparian and aquatic conditions that are specific to the planning area are being developed, and may replace the current RMOs.

6. **Monitoring/Adaptive Management:** The monitoring strategy is currently being developed and will address protocols for both implementation and effectiveness monitoring needed to implement adaptive management.

CNFish Strategy - INFISH Crosswalk

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	INFISH wording	
Goals Maintain or Restore…	The goals are to maintain or restore:	All 8 goals will be incorporated into the RMP.
	(1) Water quality, to a degree that provides for stable and productive riparian and aquatic ecosystems	
	(2) Stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which the riparian and aquatic ecosystems developed.	
	(3) Instream flows to support healthy riparian and aquatic habitats, the stability and effective function of stream channels, and the ability to route flood discharges.	
	(4) Natural timing and variability of the water table elevation in meadows and wetlands.	
	(5) Diversity and productivity of native and desired non-native plant communities in riparian zones.	
	(6) Riparian vegetation to: (a) Provide an amount and distribution of large woody debris characteristic of natural aquatic and riparian ecosystems; (b) Provide adequate summer and winter thermal regulation within the riparian and aquatic zones; and (c) Help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed.	
	(7) Riparian and aquatic habitats necessary to foster the unique genetic fish stocks that evolved within the specific geo-climatic region.	
	(8) Habitat to support populations of well-distributed native and non-native plant, vertebrate, and invertebrate populations that contribute to the viability of riparian-dependent communities.	
Riparian Management Objectives Forested and non-forested ecosystems	Apply where watershed analysis has not been done. The components of good habitat can vary across specific geographic areas. Interim RMOs are considered to be the best watershed scale information available; BLM managers would be encouraged to establish site-specific RMOs through watershed analysis or site-specific analysis.	The BLM is encouraged to establish area-wide RMOs. Apply RMOs where analysis for determining area-wide specific RMOs has not been completed. All 6 RMOs will be included in revised RMP and other RMOs (e.g. substrate) may be added.

INFISH	**Original Conservation Measures**	**Direction in the CdA RMP (CNFish Strategy)**
	(1) Pool frequency (all systems) width/#pools per mile, 10/96, 20/56, 25/47, 50/26, 75/23, 100/18, 125/14, 150/12, 200/9	
	(2) Water temperature (all systems) No measurable increase in maximum water temperature (7-day moving average of daily maximum temperature measured as the average of the maximum daily temperature of the warmest consecutive 7-day period). Maximum water temperature below 59°F within adult holding habitat and below 48°F within spawning and rearing habitats.	
	(3) Large woody debris (forested systems) >20 pieces per mile, >12 inch diameter, >35 foot length	
	(4) Bank stability (non-forested systems) >80% stable	
	(5) Lower bank angle (non-forested systems) >75% of banks with <90 degree angle (i.e., undercut)	
	(6) Width/depth ratio (all systems) <10, mean wetted width divided by mean depth	
RHCAs/ RCAs	RHCAs are portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines.	RCAs are lands that area likely to affect the condition and/or function of aquatic habitat, and may include areas adjacent to streams, ponds, lakes, wetlands, and unstable landscapes. In RCAs riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines.
	Interim RHCA widths apply where watershed analysis has not been completed. Establishment of RHCAs required completion of watershed analysis to provide the ecological basis for the change. However, interim RHCAs may be modified by amendment in the absence of watershed analysis where stream reach or site-specific data support the change. In all cases, the rational supporting RHCA widths and their effects would be documented.	The dimensions of RCAs are best defined by local or watershed analysis. In the absence of such analysis, the following default RCA widths apply.
	Category 1 – Fish bearing streams: Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to the outer edges of the riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300	**Category 1 – Fish bearing streams:** RCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to the outer edges of the riparian vegetation, or 300 feet slope distance (600 feet, including both sides of the stream channel),

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.	whichever is greatest.
	Category 2 – Permanently flowing non-fish bearing streams: Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to the outer edges of the riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.	**Category 2 – Permanently flowing non-fish bearing streams:** RCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to the outer edges of the riparian vegetation, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.
	Category 3 - Ponds, lakes, reservoirs and wetlands greater than 1 acre: Interim RHCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest.	**Category 3 - Ponds, lakes, reservoirs and wetlands greater than 1 acre:** RCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest.
	Category 4 – Seasonally flowing or intermittent streams, wetlands less that 1 acre, landslides, and landslide-prone areas: This category includes features with high variability in size and site-specific characteristics. At a minimum the interim RHCAs must include: a. the extent of landslides and landslide-prone areas b. the intermittent stream channel and the area to the top of the inner gorge c. the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation d. for Priority Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide prone area to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest e. for watersheds not identified as Priority Watersheds, the area from the edges of the stream channel, wetland, landslide, landslide-prone area to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greatest.	**Category 4 – Seasonally flowing or intermittent streams and wetlands less than 1 acre with riparian characteristics as defined by properly functioning condition inventory, and landslides and landslide-prone areas:** This category includes features with high variability in size and site-specific characteristics. At a minimum the RCAs must include: a. the extent of landslide and landslide-prone areas and the area from the edges of the landslide/landslide-prone area to a distance of 100 feet slope distance. b. the intermittent stream channel and the area to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to the area from the edges of the stream channel to a distance of 100 feet slope distance, whichever is greatest. c. the wetland area and the area to the outer edges of the riparian vegetation, or to a distance of 100 feet slope distance, whichever is greatest.

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	Non-forested rangeland ecosystems Category 1 & 2 streams extent of 100 year flood plain.	Non-forested rangeland ecosystems Category 1 & 2 streams extent of 100 year flood plain.
Standards and Guidelines	Apply to all RHCAs. Standards & Guides apply to all RHCAs and to projects and activities in areas outside of RHCAs that are identified through NEPA analysis as potentially degrading RHCAs.	Standards & Guides apply to all RCAs and to projects and activities in areas outside of RCAs that are identified through NEPA analysis as potentially degrading RCAs.
RCA-1 (NEW)		Activities in RCAs should be designed to enhance, restore or maintain the physical and biological characteristics of the RCA when feasible by implementing the following: a. Activities in RCAs that are intact and functioning in a desired condition as indicated by RMOs or other measures must be designed to at least maintain that desired condition. b. Activities in RCAs that are not at desired condition as indicated by RMOs or other measures should include a restoration component as part of the project. c. Activities in RCAs must not result in long-term degradation to aquatic conditions. Limited short-term effects from activities in the RCA may be acceptable when outweighed by the long-term benefits to the RCA and aquatic resources.
Timber Mgmt		
TM-1	Prohibit timber harvest, including fuelwood cutting, in RHCAs, except as described below. Do not include RHCAs in the land base used to determine the ASQ, but any volume harvested can be contribute to the timber sale program Prohibit timber harvest, including fuelwood cutting, in RHCAs, except as described below.	Vegetation management practices may be used in RCAs only to restore or enhance physical and biological characteristics of the RCA including Riparian Management Objectives.
TM1-a	Where catastrophic events such as fire, flooding, volcanic, wind or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting in RHCAs only where present and future woody debris needs are met, where cutting would not retard or prevent attainment of the Riparian Management Objectives, and where adverse effects *on listed anadromous fish can be avoided* (can be avoided to inland native fish). For *with listed salmon or designated critical habitat* (priority watersheds), complete watershed analysis prior to salvage cutting in RHCAs. (PAC/IN)	No fuelwood cutting will be authorized within an RCA.

INFISH	**Original Conservation Measures**	**Direction in the CdA RMP (CNFish Strategy)**
TM-1 b.	Apply silvicultural practices in RHCAs to acquire desired vegetation characteristics where needed to attain Riparian Management Objectives. Apply silvicultural practices in a manner that does not retard attainment of Riparian Management Objectives and that avoids adverse effects on inland native fish.	Delete
Roads Mgmt		
RF-1	Cooperate with federal, tribal, State, and county agencies, and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to attain Riparian Management Objectives.	Cooperate with federal, tribal, State, and county agencies, and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to attain Riparian Management Objectives.
RF-2	For each existing or planned road, meet the Riparian Management Objectives and avoid adverse effects to inland native fish by:	For each existing or planned road (authorized across BLM-managed land or BLM easement across other lands), strive to meet the Riparian Management Objectives and avoid adverse effects to native fish.
RF-2 a.	Completing watershed analysis prior to construction of new roads or landings in RHCAs within priority watersheds.	Complete watershed or site specific analysis, prior to construction of new roads or landings in RCAs. The analysis will be done at the scale appropriate to the road and/or landing. Analysis will include the site-scale, in the context of the reach scale, and the watershed scale.
RF-2b.	Minimizing road and landing locations in RHCAs.	When practical close existing roads, and avoid constructing new roads or landings within RCAs.
RF2-c.	Initiating development and implementation of a Road Management Plan or a Transportation Management Plan. At a minimum, address the following items in the plan: 1. Road design criteria, elements, and standards that govern construction and reconstruction. 2. Road management objectives for each road. 3. Criteria that govern road operation, maintenance, and management. 4. Requirements for pre-, during-, and post- storm inspections and maintenance. 5. Regulation of traffic during wet periods to minimize erosion and sediment delivery and accomplish other objectives. 6. Implementation and effectiveness monitoring plans for road stability, drainage, and erosion control. 7. Mitigation plans for road failures.	Ensure that the Transportation/Travel Management Plan is consistent with RMOs.

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
RF2-d.	Avoiding sediment delivery to streams from the road surface. 1. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe. 2. Route road drainage away from potentially unstable stream channels, fills, and hillslopes.	Avoid sediment delivery to streams from the road surface. 1. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe. 2. Route road drainage away from potentially unstable stream channels, fills, and hillslopes.
RF2-e.	Avoiding disruption of natural hydrologic flow paths	When practical avoid disruption of natural hydrologic flow paths.
RF2-f.	Avoiding sidecasting of soils or snow. Sidecasting of road materials is prohibited on road segments within or abutting RHCAs in priority watersheds.	Sidecasting of road materials is prohibited on road segments within or abutting RCAs in watersheds occupied by native fish.
RF-3	Determine the influence of each road on Riparian Management Objectives. Meet Riparian Management Objectives and avoid adverse effects to inland native fish by: a. reconstructing road and drainage features that do not meet design criteria or operation and maintenance standards, or that have been shown to be less effective than designed for controlling sediment delivery, or that retard attainment of Riparian Management Objectives, or do not protect priority watersheds from increased sedimentation. b. prioritizing reconstruction based on the current and potential damage to inland native fish and their priority watersheds, the ecological value of the riparian resources affected, and the feasibility of options such as helicopter logging and road relocation out of RHCAs. c. closing and stabilizing or obliterating, and stabilizing roads not needed for future management activities. Prioritize these actions based on the current and potential damage to native inland fish in priority watersheds, and the ecological value of riparian resources affected.	Avoid adverse effects to native fish by: a. relocate or reconstruct road and drainage features that do not meet design criteria or operation and maintenance standards, or that have been shown to be less effective than designed for controlling sediment delivery, or that delays or prevents attainment of Riparian Management Objectives within the expected, near natural period of restoration as determined by an aquatic, soils, and/or riparian specialist, or do not protect native fish from increased sedimentation. b. prioritizing reconstruction based on the current and potential habitat, the ecological value of the riparian resources affected, and the feasibility of options such as helicopter logging and road relocation out of RCAs. c. closing and stabilizing or obliterating, and stabilizing roads not needed for future management activities. Prioritize these actions based on the current and potential damage to native fish, and the ecological value of riparian resources affected.
RF-4	Construct new and improve existing culverts bridges and other stream crossings to accommodate a 100-year flood, including associated bedload and debris, where those improvements would/do pose a substantial	When constructing new, replacement and reconstructed culverts, bridges, and other stream crossings accommodate a 100-year flood, including associated bedload and debris, where those improvements would/do pose a

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	risk to riparian conditions. Substantial risk improvements include those that do not meet design and operation maintenance criteria, or that have been shown to be less effective than designed for controlling erosion, or that retard attainment of Riparian Management Objectives, or that do not protect priority watersheds from increased sedimentation. Base priority for upgrading on risks to priority watersheds and the ecological value of the riparian resources affected. Construct and maintain crossings to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.	substantial risk to riparian conditions. Substantial risk improvements include those that do not meet design and operation maintenance criteria, or that have been shown to be less effective than designed for controlling erosion, or that retard attainment of Riparian Management Objectives, or that do not protect native fish habitat from increased sedimentation. Base priority for upgrading on risks to native fish and the ecological value of the riparian resources affected. Construct and maintain crossings to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
RF-5	Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.	Provide and maintain passage for fish and other aquatic organisms at new, replacement, and reconstructed road crossings of existing and potential fish-bearing streams, unless barriers are determined beneficial for native fish. The preferred approach is to implement streambed simulation strategies or have no crossing structure.
Grazing Mgmt		
GM-1	Modify grazing practices (e.g., accessibility of riparian areas to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of Riparian Management Objectives or are likely to adversely affect native inland fish. Suspend grazing if adjusted practices are not effective in meeting Riparian Management Objectives.	Range project plans, allotment management plans, and annual plans of operation shall be developed, revised, and maintained where needed to achieve the RMOs. These plans establish objectives for managing vegetation resources (including activities needed to achieve the objectives) to achieve desirable riparian conditions. This may include grazing schedule, grazing system, season of use, class of livestock, stocking levels, forage products and utilization rates, and improvements needed to achieve objectives. The results of monitoring riparian and streamside condition will be used to determine the need for change.
GM-2	Locate new livestock handling and/or management facilities outside of RHCAs. For existing livestock handling facilities inside RHCAs, assure that facilities do not prevent attainment of Riparian Management Objectives. Relocate or close facilities where these objectives cannot be met.	Locate new livestock handling and/or management facilities outside of RCAs. For existing livestock handling facilities inside RCAs, assure that facilities do not prevent attainment of Riparian Management Objectives or adversely affect native fish. Relocate or close facilities where these objectives cannot be met.
GM-3	Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that would not prevent or retard attainment of Riparian Management Objectives or adversely affect inland native	Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that would not prevent or retard attainment of Riparian Management Objectives or adversely affect native native fish

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	fish.	
Recreation Mgmt		
RM-1	Design, construct, and operate recreation facilities, including trails and dispersed sites, in a manner that does not retard or prevent attainment of the Riparian Management Objectives and avoids adverse effects on inland native fish. Complete watershed analysis prior to construction of new recreation facilities in RHCAs. For existing recreation facilities inside RHCAs, assure that the facilities or use of the facilities will not prevent attainment of Riparian Management Objectives or adversely affect inland native fish. Relocate or close recreation facilities where Riparian Management Objectives cannot be met or adverse effects inland native fish cannot be avoided.	Design, construct, and operate recreation facilities, including trails and dispersed sites, in a manner that does not retard or prevent attainment of the Riparian Management Objectives and avoids adverse effects on native fish. Complete site specific watershed analysis prior to construction of new recreation facilities in RCAs. The level of watershed or site specific analysis should be commensurate with the scope and issues of the project and related aquatic resources. For existing recreation facilities inside RCAs, assure that the facilities or use of the facilities will not prevent attainment of Riparian Management Objectives or adversely affect native fish. Relocate or close recreation facilities where Riparian Management Objectives cannot be met or adverse effects on native fish cannot be avoided.
RM-2	Adjust dispersed and developed recreation practices that retard or prevent attainment of Riparian Management Objectives or adversely affect inland native fish. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective in meeting Riparian Management Objectives and avoiding adverse effects on inland native fish, eliminate the practice or occupancy.	Adjust dispersed and developed recreation practices that delays or prevents attainment of Riparian Management Objectives within the expected, near natural period of restoration as determined by an aquatic, soils, and/or riparian specialist, or adversely affect native fish. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective in meeting Riparian Management Objectives and avoiding adverse effects on native fish, eliminate the practice or occupancy.
RM-3	Address attainment of Riparian Management Objectives and potential effect on inland native fish in Wild and Scenic Rivers, Wilderness, and other Recreation Management plans.	Address attainment of Riparian Management Objectives and potential effect on native fish in Wild and Scenic Rivers, Wilderness, and other Recreation Management plans.
Minerals Mgmt		
MM-1	Minimize adverse affects to inland native fish from mineral operations. If a Notice Of Intent indicates that a mineral operation would be located in an RHCA, consider the effects of the activity on inland native fish in the determination of significant surface disturbance pursuant to 36 CFR 228.4. For operations in RHCAs ensure operators take all practicable measures to maintain, protect, and rehabilitate fish and wildlife habitat which may be affected by the operations. When bonding is required, consider (in the estimation of the bond amount) the cost of stabilizing,	Minimize adverse affects to native fish from mineral operations. If a Notice Of Intent indicates that a mineral operation would be located in an RCA, consider the effects of the activity on native fish in the determination of significant surface disturbance pursuant 43 CFR Part 3000s. For operations in RCAs ensure operators take all practicable measures to maintain, protect, and rehabilitate fish and wildlife habitat which may be affected by the operations. When bonding is required, consider (in the estimation of the bond amount) the cost of stabilizing, rehabilitating,

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	rehabilitating, and reclaiming the area of operations.	and reclaiming the area of operations.
MM-2	Locate structures, support facilities, and roads outside RHCAs. Where no alternative to sitting facilities in RHCAs exists, locate and construct the facilities in ways that avoid impacts to RHCAs and streams and adverse effects on inland native fish. Where no alternative to road construction exists, keep roads to the minimum necessary for the approved mineral activity. Close, obliterate, and revegetate roads no longer required for mineral or land management activities.	Locate structures, support facilities, and roads outside RCAs. Where no alternative to sitting facilities in RCAs exists, locate and construct the facilities in ways that avoid impacts to RCAs and streams and adverse effects on native fish. Where no alternative to road construction exists, keep roads to the minimum necessary for the approved mineral activity. Close, obliterate, and revegetate roads no longer required for mineral or land management activities.
MM-3	Prohibit solid and sanitary waste facilities in RHCAs. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in RHCAs exists, and releases can be prevented and stability can be ensured, then:	Prohibit solid and sanitary waste facilities in RCAs. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in RCAs exists, and releases can be prevented and stability can be ensured, then:
a.	analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.	a. analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.
b.	locate and design the waste facilities using the best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in RHCAs	b. locate and design the waste facilities using the best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in RCAs
c.	monitor waste and waste facilities to assure chemical and physical stability, and make adjustments to operations as needed to avoid adverse effects to inland native fish and Riparian Management Objectives.	c. monitor waste and waste facilities to assure chemical and physical stability, and make adjustments to operations as needed to avoid adverse effects to native fish and Riparian Management Objectives.
d.	reclaim and monitor waste facilities to assure chemical and physical stability and re-vegetation to avoid adverse effects to inland native fish, and to attain the Riparian Management Objectives.	d. reclaim and monitor waste facilities to assure chemical and physical stability and re-vegetation to avoid adverse effects to native fish, and to attain the Riparian Management Objectives.
e.	require reclamation bonds adequate to ensure long-term chemical and physical stability and successful re-vegetation of mine waste facilities.	e. require reclamation bonds adequate to ensure long-term chemical and physical stability and successful re-vegetation of mine waste facilities.
MM-4	For leasable minerals, prohibit surface occupancy within RHCAs for oil, gas and geothermal exploration and development activities where contracts and leases do not already exists, unless there are no other options for location and Riparian Management Objectives can be attained and adverse effects to inland native fish can be avoided. Adjust the operating plans of existing contracts to (1) eliminate impacts that prevent attainment of	For leasable minerals, prohibit surface occupancy within RCAs (NSO-2 see Appendix H) where contracts and leases do not already exists, unless there are no other options for location and Riparian Management Objectives can be attained and adverse effects to native fish can be avoided. Adjust the operating plans of existing contracts to (1) eliminate impacts that prevent attainment of Riparian Management Objectives and (2) avoid adverse

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	Riparian Management Objectives and (2) avoid adverse effects to inland native fish	effects to native fish.
MM-5	Permit sand and gravel mining and extraction within RHCAs only if no alternatives exist, if the action(s) would not retard or prevent attainment of Riparian Management Objectives, and adverse effects to inland native fish be avoided.	Permit sand and gravel mining and extraction within RCAs only if no alternatives exist, if the action(s) would not delay or prevent attainment of Riparian Management Objectives within the expected, near natural period of restoration as determined by an aquatic, soils, and/or riparian specialist, and adverse effects to native fish can be avoided.
MM-6	Develop inspection, monitoring, and reporting requirements for mineral activities. Evaluate and apply the results of inspection and monitoring to modify mineral plans, leases, or permits as needed to eliminate impacts that prevent attainment of Riparian Management Objectives and avoid adverse effects on inland native fish.	Develop inspection, monitoring, and reporting requirements for mineral activities. Evaluate and apply the results of inspection and monitoring to modify mineral plans, leases, or permits as needed to eliminate impacts that prevent attainment of Riparian Management Objectives and avoid adverse effects on native fish.
Fire Mgmt		
FM-1	Design fuel treatment and fire suppression strategies, practices, and actions so as not to prevent attainment of Riparian Management Objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could perpetuate or be damaging to long-term ecosystem function, inland native fish.	Design and implement fire suppression strategies, practices, and actions so as not to delay or prevent attainment of Riparian Management Objectives within the expected, near natural period of restoration as determined by an aquatic, soils, and/or riparian specialist. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression actions could perpetuate or be damaging to long-term ecosystem function or native fish.
FM-2	Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of RHCAs. If the only suitable location for such activities is within the RHCA, an exemption may be granted following a review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements, with avoidance of adverse effects to inland native fish a primary goal. Use an interdisciplinary team, including a fishery biologist, to predetermine incident base and helibase locations during pre-suppression planning.	Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of RCAs. If the only suitable location for such activities is within the RCA, an exemption may be granted following a review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements, with avoidance of adverse effects to native fish as a primary goal. Use an interdisciplinary team for pre-suppression planning of, including a fishery biologist, to predetermine incident base and helibase locations during pre-suppression planning.
FM-3	Avoid delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or following a review and recommendation by a resource advisor and a fishery biologist, when the action agency determines an escape fire would cause more long-term damage to fish habitats than chemical delivery to surface	Avoid delivery of chemical retardant, foam, or additives to surface waters. An exception warranted where overriding immediate safety imperatives exist. An exception may be warranted when the action agency, with concurrence from a resource advisor and a fisheries biologist, determines an escape fire would cause more long-term damage to fish habitats than chemical delivery to surface

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	waters.	waters.
FM-4	Design prescribed burn projects and prescriptions to contribute to the attainment of the Riparian Management Objectives.	Design prescribed burn projects and prescriptions to contribute to the attainment of the Riparian Management Objectives.
FM-5	Immediately establish an emergency team to develop a rehabilitation treatment plan to attain Riparian Management Objectives and avoid adverse effects on native inland fish whenever RHCAs are significantly damaged by wildfire, suppression activities or prescribed fire burning out of prescription.	Delete
Lands		
LH-1	Require instream flows and habitat conditions for hydroelectric and other surface water development proposals that maintain or restore riparian resources, favorable channel conditions, and fish passage, reproduction and growth. Coordinate this process with the appropriate State agencies. During re-licensing of hydroelectric projects, provide written and timely license conditions to the Federal Energy Regulatory Commission (FERC) that require fish passage and flows and habitat conditions that maintain/restore riparian resources and channel integrity. Coordinate re-licensing projects with the appropriate State agencies.	Require instream flows and habitat conditions for hydroelectric and other surface water development proposals that maintain or restore riparian resources, favorable channel conditions, and fish passage, reproduction and growth. Coordinate this process with the appropriate State agencies. During re-licensing of hydroelectric projects, provide written and timely license conditions to the Federal Energy Regulatory Commission (FERC) that require fish passage and flows and habitat conditions that maintain/restore riparian resources and channel integrity. Coordinate re-licensing projects with the appropriate State agencies.
LH-2	Locate new hydroelectric ancillary facilities outside RHCAs. For existing ancillary facilities inside the RHCA that are essential to proper management, provide recommendations to FERC to assure that the facilities would not prevent attainment of the Riparian Management Objectives and that adverse effects on inland native fish are avoided. Where these objectives cannot be met, provide recommendations to FERC that such ancillary facilities should be relocated. Locate, operate and maintain hydroelectric facilities that must be located in RHCAs to avoid effects that would retard or prevent attainment of the Riparian Management Objectives and avoid adverse effects on inland native fish.	Locate new hydroelectric ancillary facilities outside RCAs. For existing ancillary facilities inside the RCA that are essential to proper management, provide recommendations to FERC to assure that the facilities would not prevent attainment of the Riparian Management Objectives and that adverse effects on native fish are avoided. Where these objectives cannot be met, provide recommendations to FERC that such ancillary facilities should be relocated. Locate, operate and maintain hydroelectric facilities that must be located in RCAs to avoid effects that would retard or prevent attainment of the Riparian Management Objectives and avoid adverse effects on native fish.
LH-3	Issue leases, permits, rights-of-way, and easements to avoid effects that would retard or prevent attainment of the Riparian Management Objectives and avoid adverse effects on inland native fish. Where the authority to do so was retained, adjust existing leases, permits, right-of-way, and easements to eliminate effects that would retard or prevent attainment of the Riparian Management Objectives or adversely affect native aquatic	Issue leases, permits, rights-of-way, and easements to avoid effects that would retard or prevent attainment of the Riparian Management Objectives and native fish. Where the authority to do so was retained, adjust existing leases, permits, right-of-way, and easements to eliminate effects that would retard or prevent attainment of the Riparian Management Objectives or adversely affect native aquatic species and/or water quality.

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	species and/or water quality. Priority for modifying existing leases, permits, right-of-way and easements would be based on the current and potential adverse effects on inland native fish, and the ecological value of the riparian resources affected.	Priority for modifying existing leases, permits, right-of-way and easements would be based on the current and potential adverse effects on native fish, and the ecological value of the riparian resources affected.
LH-4	Use land acquisition, exchange and conservation easements to meet Riparian Management Objectives and facilitate restoration of fish stocks and other species at risk of extinction.	Use land acquisition, exchange and conservation easements to meet Riparian Management Objectives and facilitate restoration of fish stocks and other species at risk of extinction.
General Riparian Area Mgmt		
RA-1	Identify and coordinate with Federal. Tribal, State and local governments to secure instream flows needed to maintain riparian resources, channel conditions and aquatic habitat.	Identify and coordinate with Federal. Tribal, State and local governments to secure instream flows needed to maintain riparian resources, channel conditions and aquatic habitat.
RA-2	Trees may be felled in RHCAs when they pose a safety risk. Keep felled trees on site when needed to meet woody debris objectives.	Trees may be felled in RCAs when they pose a safety risk. Keep felled trees on site when needed to meet woody debris objectives.
RA-3	Apply herbicides, pesticides, and other toxicants, and other chemicals in a manner that does not retard or prevent attainment of Riparian Management Objectives and avoids adverse effects on inland native fish.	Apply herbicides, pesticides, and other toxicants, and other chemicals in a manner that does not delay or prevent attainment of Riparian Management Objectives within the expected, near natural period of restoration as determined by an aquatic, soils, and/or riparian specialist, and avoids adverse effects on native fish.
RA-4	Prohibit storage of fuels and other toxicants within RHCAs. Prohibit refueling within RHCAs unless there are no other alternatives. Refueling sites within an RHCA must be approved by the Forest Service or Bureau of Land Management and have an approved spill containment plan.	Prohibit storage of fuels and other toxicants and refueling within RCAs unless there are no other practicable alternatives. Refueling sites and storage areas within an RCA must be approved and have an approved spill containment plan.
RA-5	Locate water drafting sites to avoid adverse effects to inland native fish and instream flows, and in a manner that does not retard or prevent attainment of Riparian Management Objectives.	Locate water drafting sites to avoid adverse effects to native fish and instream flows, and in a manner that does not delay or prevent attainment of Riparian Management Objectives within the expected, near natural period of restoration as determined by an aquatic, soils, and/or riparian specialist.
Watershed and Habitat Restoration		
WR-1	Design and implement watershed restoration projects in a manner that promotes the long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and contributes to attainment of Riparian Management Objectives.	Design and implement watershed restoration projects in a manner that promotes the long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and contributes to attainment of Riparian Management Objectives.
WR-2	Cooperate with Federal, State, local and Tribal agencies and private landowners to develop	Cooperate with Federal, State, local and Tribal agencies and private landowners to develop

INFISH	**Original Conservation Measures**	**Direction in the CdA RMP (CNFish Strategy)**
	watershed-based Coordinated Resource Management Plans (CRMPs) or other cooperative agreements to meet Riparian Management Objectives.	watershed-based Coordinated Resource Management Plans (CRMPs) or other cooperative agreements to meet Riparian Management Objectives.
Fisheries and Wildlife Restoration		
FW-1	Design and implement fish and wildlife habitat restoration and enhancement actions in a manner that contributes to attainment of Riparian Management Objectives.	Design and implement fish and wildlife habitat restoration and enhancement actions in a manner that contributes to attainment of Riparian Management Objectives.
FW-2	Design, construct, and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of the Riparian Management Objectives or adversely affect inland native fish. For existing fish and wildlife interpretive and other user-enhancement facilities inside RHCAs, assure the Riparian Management Objectives are met and adverse effected on inland native fish are avoided. Where Riparian Management Objectives cannot be met or adverse effects on inland native fish avoided, relocate or close such facilities.	Design, construct, and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of the Riparian Management Objectives or adversely affect native fish. For existing fish and wildlife interpretive and other user-enhancement facilities inside RCAs, assure the Riparian Management Objectives are met and adverse effected on native fish are avoided. Where Riparian Management Objectives cannot be met or adverse effects on native fish avoided, relocate or close such facilities.
FW-3	Cooperate with Federal, and State wildlife management agencies to identify and eliminate wild ungulate impacts that prevent attainment of the Riparian Management Objectives or adversely affect inland native fish.	Cooperate with Federal, and State wildlife management agencies to identify and eliminate wild ungulate impacts that prevent attainment of the Riparian Management Objectives or adversely affect native fish.
FW-4	Cooperate with Federal, and State fish management agencies to identify and eliminate adverse effects on native anadromous fish associated with habitat manipulation, fish stocking, fish harvest, and poaching.	Cooperate with Federal, and State fish management agencies to identify and eliminate adverse effects on native anadromous fish associated with habitat manipulation, fish stocking, fish harvest, and poaching.
Conservation and Restoration Watersheds	Areas in good condition would serve as anchors for the potential recovery of depressed stocks, and also would provide colonists for adjacent areas where habitat had been degraded by land management or natural events. Those areas of lower quality habitat with high potential for restoration would become future sources of good habitat with the implementation of a comprehensive restoration program. Priority watersheds would have the highest priority for restoration, monitoring and watershed analysis.	Determine what watersheds are "Conservation" watersheds and which ones are "Restoration" watersheds. See Appendix E
Restoration Watershed Criteria	1) Watersheds with stocks listed pursuant to the Endangered Species act, or stocks identified in the 1991 American Fisheries Society report as	

INFISH	Original Conservation Measures	Direction in the CdA RMP (CNFish Strategy)
	"at risk" 2) watersheds that contain excellent habitat for mixed salmonid assemblages 3) degraded watersheds with a high restoration potential	
Conservation watershed criteria	1) watersheds with excellent habitat or strong assemblages of inland native fish, with a priority on bull trout populations. 2) Watersheds that provide for meta-population objectives. 3) Degraded watersheds with high restoration potential	
Watershed Analysis – Biological Opinion	Priority watersheds are highest priority for watershed analysis. Complete watershed analysis in existing INFISH priority watersheds, and special emphasis watersheds. Project decisions will be guided by the results of watershed analysis.	When feasible the BLM will coordinate with the FS with their watershed analysis schedule but BLM will not be a lead on watershed analysis due to our scattered land patterns. For small tracts of federal land associated with high value salmonid habitats, the BLM will use focused analysis at the reach, watershed, or subbasin scales.[1]
Watershed Analysis - Biological Opinion	As part of watersheds analyses, road inventories, and other appropriate information will be used to collaborate with NOAA and FWS in developing restoration strategies. Restoration strategies will be used to identify key processes needing attention, prioritize key locations and project types, address implementation and scheduling issues and provide a preliminary estimate of costs. These strategies will serve as the primary framework for implementation of integrated restoration activities. (BO).	Roads analysis is part of the plan revision and will continue to be a part of larger watershed assessments.
Road Inventories Biological Opinion	Continue updating road inventories.	Current road inventories are being used as part of the base for plan revision.
Watershed Restoration Biological Opinion	The FS and BLM in cooperation with NOAA-Fisheries and the USFWS will develop and implement strategies that will integrate and coordinate restoration, protection, and evaluation measures (construction/maintenance, flood repair, watershed and fish habitat improvements, etc.) to expeditiously achieve restoration objectives at multiple scales. Restoration opportunities will be identified through an agreed upon	The Cd'A RMP will include conservation and restoration strategies/themes for watersheds. See Appendix E.

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[1] As described in the FS/BLM memorandum dated July 29, 2004: Clarification of NMFS and USFWS 1998 Biological Opinion Requirements for completing Watershed Analysis (PACFISH, INFISH) and Subbasin Assessments (PACFISH only)

INFISH	**Original Conservation Measures**	**Direction in the CdA RMP (CNFish Strategy)**
	approach using existing funding, information and programs, and incorporating new information as it becomes available. *The Interim Watershed Restoration Strategy was completed in May, 2000 and is available to the field units.*	
Monitoring Biological Opinion	Monitoring is an important component of the proposed interim direction. The primary focus is to verify that the standards and guidelines were applied during the project implementation.	Cd'A BLM monitoring will address effectiveness of implementing standards and guidelines.

APPENDIX E – CONSERVATION AND RESTORATION WATERSHEDS

Appendix E: Conservation and Restoration Watersheds

Conservation Area Designation

Conservation areas are the subwatersheds in which current watershed processes and conditions have resulted in natural landscape patterns. Hydrologic function, such as sediment amounts and stream flow regimes resulting from disturbances are within a natural range of frequency, duration, and intensity. Waters are meeting designated or existing beneficial uses. High quality water is common to provide both current and future public drinking water supplies. Land uses and human activities do not strongly influence landscape pattern or hydrologic function, as indicated by low road density and few stream crossings. Examples of conservation areas include wilderness and many of the roadless subwatersheds.

As a general rule minimal investment over time is needed to maintain function and critical instream and upland habitat elements in these conservation-designated watersheds.

Restoration Area Designation

Restoration areas are the subwatersheds where biological and physical processes and conditions do not reflect natural patterns because of past and long-term land disturbances. These disturbances are a result of past activities such as extensive roads network, timber harvest near stream channels, stream channel changes caused by mining, and riparian damage due to unmanaged livestock grazing. The common effect of these disturbances are long-term (decades) increase of sediment deposition in streams, loss of large woody debris recruitment to stream channels, abnormal hydrologic patterns (water flows), and elevated water temperatures. Cumulative impacts from human caused disturbances and periodic natural events such as large fires, landslides, and floods exacerbate abnormal watershed and biological conditions.

Active management is required to restore the physical and biological function to their natural range of frequency, duration, and intensity. Identification and assessment of the significant adverse impacts to habitat will allow managers to focus restoration efforts in the most cost effective manner to achieve hydrologic and biological recovery. This implies that 1) there is a range of treatment intensities and desired landscape responses, and 2) not all impacts need be treated to achieve goals.

Priority Designations

Primary issues considered in ranking status and risks are water quality, riparian habitat, existing aquatic species diversity, and potential fisheries habitats productivity. Opportunities considered the expected cost and response time to effect measurable changes toward achieving goals.

Population Strongholds

Watersheds of value for protection of populations of federally listed and proposed aquatic species and narrow endemics (i.e. population strongholds) were ranked high priority. The intent is that strongholds will provide high quality habitat for species and support expansion and recolonization of species to adjacent watersheds. Population strongholds may be added, deleted, or modified, based on new information.

High Priority Criteria – Conserve Area Designation

1. Population strongholds for federally listed and proposed aquatic species and narrow endemics, based on high genetic integrity, connectivity of subpopulations, and restoration/expansion potential into adjacent watersheds OR;
2. Fish species assemblages contribute to high biological diversity. Habitats support productive or unique populations and key salmonid species exhibit full range of life history diversity. The assumption is that the aquatic community is largely intact, and is a potential source of individuals to nearby recovering populations AND;
3. Water quality supports designated and existing beneficial uses; OR
4. Municipal (public) water supplies.

Moderate Priority Criteria – Conserve Area Designation

1. Fish species assemblages represent moderate biological diversity AND;
2. Water quality supports designated and existing beneficial uses.

High Priority Criteria – Restore Area Designation

1. Population strongholds for federally listed and proposed aquatic species and narrow endemics, based on high genetic integrity, connectivity of subpopulations, and restoration/expansion potential into adjacent watersheds OR;
2. Habitat potential for highly productive or unique fish communities with restoration efforts. Loss of connected populations, competition or genetic introgression with non-native species has caused the loss of diversity of some unique populations such as key salmonids species. The assumption is that the aquatic community is largely intact, but not resilient to landscape disturbance events, nor provides a source of individuals to nearby recovering populations AND;
3. Water quality may not support all designated and existing beneficial uses OR:
4. Municipal (public) water supply.

Moderate Priority Criteria – Restore Area Designation

1. Potential for moderately productive fish habitat with restoration efforts. Long-term loss of connected populations, competition or genetic introgression with non-native species has caused the loss of diversity of some unique populations such as key salmonids species. The assumption is that the aquatic community is largely intact, but not resilient to landscape disturbance events, nor provides a source of individuals to nearby recovering populations AND;
2. Water quality may not support all designated and existing beneficial uses OR:
3. Municipal (public) water use is a future possibility.

Low Priority Criteria – Restore Area Designation

1. There is a minor amount of fish habitat. Long-term loss of connected populations, competition or genetic introgression with non-native species has caused the loss of diversity of key salmonids species. The assumption is that the aquatic community is not intact, and not highly resilient to natural events, nor provides a source of individuals to nearby recovering populations AND;
2. Water quality may not support all designated and existing beneficial uses AND:
3. Municipal (public) water is not considered as a future use.

Coeur d'Alene Field Office Conservation and Restoration Watersheds

6th Field HUC Number	Subwatershed Name	Management Objective	Priority
Little North Fork Clearwater			
170603080904	Lund Creek	Conservation	High*
	Little Lost Creek	Conservation	High*
South Fork Coeur d'Alene			
170103020501	Mainstem Pine Creek, below confluence	Restoration	Moderate
	East Fork Pine Creek	Restoration	High
	West Fork Pine Creek	Restoration	Moderate
	Highland Creek	Restoration	Moderate
	Hunter Creek	Restoration	Moderate
170103020301	West Fork Ninemile Creek	Restoration	Moderate
170103020202	Placer Creek	Restoration	High
170103020401	Rock Creek	Restoration	Moderate
Coeur d'Alene Lake			
17010303	Upper Latour Creek	Conservation	Moderate

6th Field HUC Number	Subwatershed Name	Management Objective	Priority
St. Joe River			
170103040801	Rochat Creek	Conservation	Moderate

*Population Strongholds for bull trout, as delineated in the draft Bull Trout Recovery Plan.

APPENDIX F – MINERAL LEASING STIPULATIONS

Appendix F: Mineral Leasing Surface Use Stipulations

Apply only to mineral leasing.

Definitions:

No Surface Occupancy (NSO) = Closed to placement of surface facilities or any surface disturbing activity

Controlled Surface Use (CSU) = Activity is only subject to restraints specified in the stipulation description

Timing Limitation (TL) = Activity is subject to restraints during the time period specified in the stipulation description (i.e. seasonal).

Exception = One-time exemption

Modification = Change to the language or provisions

Waiver = Permanent exemption

Stip	Protected Resource	Acres Alt B	Acres Alt C	Acres Alt D	Description
NSO-1	ACEC WSR (Wild)	77	5,599	458	*Stipulation:* Surface occupancy is prohibited within all ACECs to protect natural processes and historic, cultural, scenic, fisheries, and wildlife resources; or to protect the public from natural hazards; and within river corridors suitable for wild designation under the WSR Act to protect special values. *Exception:* The authorized officer may grant an exception if an environmental analysis of a proposed action reveals that these values would not be impacted, or that impacts could be adequately mitigated. *Modification:* The boundaries of the stipulated area may be modified if the ACEC or suitable river corridor boundaries are modified. *Waiver:* The stipulation may be waived if the ACEC designation is lifted.

Stip	Protected Resource	Acres Alt B	Acres Alt C	Acres Alt D	Description
NSO-2	Fisheries, Special Status Fish, Aquatic Species, Riparian and Wetland Vegetation	9,099	9,099	9,099	*Stipulation*: Surface occupancy is prohibited within: • 300 feet of fish-bearing streams • 150 feet of permanently flowing non-fish bearing streams, • 150 feet of ponds, lakes, reservoirs, and wetlands greater than 1 acre *Exception*: : The authorized officer may grant an exception if an environmental assessment reveals that a proposed action may affect but is not likely to adversely affect a special status species, or concurrence is obtained from the USFWS (through applicable provisions of the Endangered Species Act), to allow an adverse effect to a listed species. *Modification*: Buffer distances may change based on monitoring and scientific research. *Waiver*: None.
NSO-3	Cultural Resources	2,870	0	2,897	*Stipulation*: Surface occupancy is prohibited within areas of cultural or spiritual value to Native American Tribes. *Exception*: The authorized officer may grant an exception if environmental analysis and Tribal consultation on a proposed action reveals that these values would not be impacted, or that impacts could be adequately mitigated. *Modification*: Through Tribal consultation, the boundaries of these areas may be changed. *Waiver*: This stipulation may be waved with written approval from the concerned Native American Tribal Council.

Stip	Protected Resource	Acres Alt B	Acres Alt C	Acres Alt D	Description
NSO-4	Raptor Nests	1,567	1,567	1,567	*Stipulation*: Surface occupancy is prohibited within 1/4 mile of identified nests. *Exception*: The authorized officer may grant an exception if concurrence is obtained from the USFWS (through applicable provisions of the Endangered Species Act, Eagle Protection Act, or Migratory Bird Treaty Act), to interrupt active nesting attempts and/or cause short or long term adverse modification of suitable nest site characteristics. An exception may also be granted by the authorized officer if environmental analysis of a proposed action reveals that it would not impair the function or utility of the nest site for current or subsequent nest activities or occupancy. *Modification*: The area of application of the NSO may be modified pending determination that a portion of the NSO area is not essential to nest site functions or utility; or that the nature or conduct of the activity, as proposed or conditioned, would not impair the function or utility of the nest site for current or subsequent nest activities or occupancy. The stipulation may also be modified if the proponent, BLM, and where necessary, other affected interests, negotiate compensation that satisfactorily offsets anticipated impacts to raptor breeding activities and/or habitats. Modifications could also occur if sufficient information is provided that supports the contention that the action would not contribute to the suppression of breeding population densities or the population's production or recruitment regime from a Geographic Reference Area perspective. If a species status is downgraded, or delisted, the NSO buffer area may be modified to an appropriate level. *Waiver*: A waiver may be granted if the species becomes extinct or if site conditions change such that there is no reasonable likelihood of occupation for a subsequent minimum period of 10 years.

Stip	Protected Resource	Acres Alt B	Acres Alt C	Acres Alt D	Description
NSO-5	Special Status Plant Species and rare plant communities.	0	15,716	15,716	*Stipulation*: No surface occupancy will be allowed on known habitat of special status plant species and rare plant communities. *Exception:* : The authorized officer may grant an exception if an environmental assessment reveals that a proposed action may affect but is not likely to adversely affect a special status species, or concurrence is obtained from the USFWS (through applicable provisions of the Endangered Species Act), to allow an adverse effect to a listed species. . *Modification*: The area of application may be modified based on inventory and scientific research. *Waiver*: None.
NSO-6	Public – from Hazardous Materials	51	0	148	Stipulation: No surface occupancy will be allowed in areas where hazardous materials are known to exist. Exception: The authorized officer may grant an exception if environmental analysis of a proposed action reveals that it would not further expose the public or the environment to hazardous materials. Modification: The area of application for this stipulation may change based on discovery or removal of hazardous materials. Waiver: This stipulation will be waived if all hazardous materials are removed from the area.
NSO-7	Developed Recreation Sites, Administrative Sites	2,025	2,025	2,025	Stipulation: No surface occupancy will be allowed within the vicinity of developed recreation sites or sites used for agency administrative purposes. Exception: The authorized officer may grant an exception if environmental analysis of a proposed action reveals that it would not adversely impact the use of the site. Modification: The area of application for this stipulation may change based on future site development. Waiver: This stipulation will be waived if the site is no longer used for recreational or administrative purposes.

Stip	Protected Resource	Acres Alt B	Acres Alt C	Acres Alt D	Description
CSU-1	VRM Class II	14,312	40,740	22,242	Stipulation: All surface-disturbing activities, semi-permanent and permanent facilities in VRM class II areas may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the visual quality objectives of the area. Exception: None. Modification: None. Waiver: This stipulation may be waived if the authorized officer determines that there is no longer VRM Class II within the area of application.
CSU-2	Special Status Terrestrial Wildlife	39,262	39,262	39,262	Stipulation: No surface-disturbing activities, semi-permanent and permanent facilities will be authorized which may impact special status terrestrial wildlife. Exception: The authorized officer may grant an exception if an environmental assessment reveals that a proposed action may affect but is not likely to adversely affect a special status species, or concurrence is obtained from the USFWS (through applicable provisions of the Endangered Species Act), to allow an adverse effect to a listed species. Modification: The area of application for this stipulation may change based on listing of new species by USFWS, or when the status of a species changes. Waiver: This stipulation will be waived if the species of concern becomes extinct or is no longer identified as a special status species.
CSU-3	Special Recreation Management Areas, WSR (Scenic & Recreation)	55,117	40,736	59,021	Stipulation: No surface-disturbing activities semi-permanent and permanent facilities will be authorized which may adversely impact the use of these areas for recreation purposes. Exception: The authorized officer may grant an exception if environmental analysis indicates that a proposed action would not adversely impact recreational use. Modification: None. Waiver: None.

Stip	Protected Resource	Acres Alt B	Acres Alt C	Acres Alt D	Description
TL-1	Deer and Elk Winter Range	27,852	27,582	27,852	Stipulation: No construction or development activities will be allowed within deer or elk winter range between December 15 and March 31. Exception: The authorized officer may grant an exception if environmental analysis indicates that a proposed action would not adversely impact use of this habitat. Modification: Area of application for this stipulation may change based on monitoring and scientific research. Waiver: None
TL-2	Bald Eagle Winter Feeding Area	285	285	285	Stipulation: No ground disturbing activity is allowed within winter feeding areas November 15 to February 15. *Exception*: An exception may be granted by the authorized officer if concurrence is obtained from the USFWS (through applicable provisions of the Endangered Species Act, Eagle Protection Act, or Migratory Bird Treaty Act), to interrupt feeding activities and/or cause short or long term adverse modification of suitable roost site characteristics. The Area Manager may also grant an exception if an environmental analysis indicates that the nature or conduct of the action, as proposed or conditioned, would not impair the function or utility of the site for current or subsequent feeding activities. *Modification*: The stipulation may be modified if an environmental analysis indicates that a portion of the area is nonessential to winter feeding, or that the proposed action could be conditioned to not impair the function or utility of the site for current or subsequent feeding activities. The stipulation may also be modified commensurate with changes in species status. *Waiver*: The stipulation may be waived if the species becomes extinct or if the site has failed to support feeding activities over a minimum three year period. A waiver may also apply if the area has changed such that there is no reasonable likelihood of use for a subsequent minimum period of 10 years.

APPENDIX G – AREAS OF CRITICAL ENVIRONMENTAL CONCERN AND ALTERNATIVES

Appendix G: Areas of Critical Environmental Concern and the Alternatives

This appendix contains a description of how BLM determined the proposed Areas of Critical Environmental Concern and Research Natural Areas (RNAs) for the RMP alternatives

The first steps in the process were to identify nominations for ACECs/RNAs and determine if they met the criteria outlined in 43 CFR 1610.7-2. BLM conducted this analysis and prepared a report. This appendix contains an extract of this report. The full report is available at the CdA FO, or online at http://www.blm.gov/rmp/id/cda/. BLM determined that 21 areas met the criteria. These areas are referred to as potential ACECs/RNAs.

The next step was to determine whether the special values within each of these areas warranted designation, or whether the values were afforded appropriate protection by other management direction under each RMP alternative. Only the two RNAs that currently exist were carried forward under all alternatives. Under alternative C, all 21 areas were identified for designation to allow comparison. During development of Alternative D, BLM found that the values for 16 of the areas were protected by other management direction (see Table G-1.1 below). Alternative D identifies the other five areas (Farnham Forest RNA, Hideaway Islands RNA, Windy Bay RNA, Pulaski Tunnel ACEC, and Lund Creek RNA) for designation.

Table G-1: Management Direction to Protect Values of Areas Not Designated ACECs/RNAs under Alternative D

Area Not Designated	Values	Management Direction Providing Protection
Constitution Mine & Millsite	Mine tailings hazard, bioreactor safety concern, cultural	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Gamlin Lake	Wetland and riparian areas, Idaho BLM sensitive plant species, migratory birds	CNFISH (See Appendix D) Actions to protect special status plant species under Special Status Species Actions to protect terrestrial wildlife habitat under Fish and Wildlife
Hecla-Star Tailings Piles	Mine tailings hazard	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Killarney Lake	Bull trout, bald eagles, migratory birds, mine tailings hazard	CNFISH (See Appendix D) Actions to protect special status species Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety Designation as a Special Recreation Management Area

Table G-1: Management Direction to Protect Values of Areas Not Designated ACECs/RNAs under Alternative D

Area Not Designated	Values	Management Direction Providing Protection
Kootenai River Front	Kootenai River sturgeon, bull trout, westslope cutthroat trout, bald eagles	CNFISH (See Appendix D) Actions to protect special status species Management of river segment as eligible for Wild and Scenic River designation
Liberal King Millsite	Historic/cultural, heavy metals hazard, mill buildings and rock dump safety concerns	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Little North Fork Clearwater River	Scenic, bull trout, westslope cutthroat trout, habitat for Coeur d'Alene salamander	CNFISH (See Appendix D) Actions to protect special status species Interim management of Grandmother Mountain Wilderness Study Area Designation of the Widow Mountain Special Recreation Management Area Visual Resource Management Classes I and II designations
Morton Slough	Bald eagles, old growth ponderosa pine, habitat for BLM Sensitive wildlife	Actions to protect special status species Restrictions on vegetation treatments in the vicinity of old growth
Mother Lode Mine	Heavy metals hazard, bioreactor safety concern	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Nabob Millsite	Mine tailings hazard, mill buildings safety concern	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Rex Millsite Tailings Pile	Mine tailings hazard, dam stability issue	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety

Table G-1: Management Direction to Protect Values of Areas Not Designated ACECs/RNAs under Alternative D

Area Not Designated	Values	Management Direction Providing Protection
Rochat Divide	Cultural, scenic, wolverine	Travel management limitations in cultural area Visual Resource Management Classes I and II designations. Interim Management of Crystal Lake Wilderness Study Area Designation as a Special Recreation Management Area Actions to protect special status species
Sidney Mine & Millsite	Heavy metals hazard, rock dump, bioreactor safety concern	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Wallace Landfill	Deleterious materials hazard, contaminated seepage and run-off	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
We-Like Mine	Heavy metals hazard, rock dump, bioreactor safety concern	Actions to prevent public exposure to Hazardous Materials under Social and Economic - Health and Safety
Wolf Lodge Bay	Bull trout, westslope cutthroat trout, bald eagles, Coeur d'Alene salamander, migratory birds	CNFISH (See Appendix D) Actions to protect special status species Designation of Lake Coeur d'Alene Special Recreation Management Area

EXTRACT FROM THE AREAS OF CRITICAL ENVIRONMENTAL CONCERN NOMINATION EVALUATION REPORT

INTRODUCTION

The Federal Land Policy and Management Act of 1976 (FLPMA) states that the Bureau of Land Management (BLM) will give priority to the designation and protection of Areas of Critical Environmental Concern (ACECs) in the development and revision of land use plans. Land use plans in the BLM are known as Resource Management Plans (RMPs) and the Coeur d'Alene Field Office is currently in the multi-year process of developing such a plan.

This RMP will replace the Emerald Empire Management Framework Plan (MFP) that was approved in 1981 and predated BLM's current planning system. In 1981, the BLM did not identify specific areas for ACEC designation. However, in 1985, the Coeur d'Alene BLM District Manager issued an order designating the Hideaway Islands Research Natural Area (RNA)/ACEC. An RNA is an area that is established as an ACEC and is maintained for the primary purpose of research and education in accordance with 43 CFR 8223. Then in 1989 the BLM completed a land use plan amendment which designated one additional RNA/ACEC, Lund Creek.

This report describes BLM's evaluation of 19 newly nominated areas, as well as the re-evaluation of 2 existing ACECs, using the relevance and importance criteria outlined in 43 CFR 1610.7-1 (also listed in the Relevance and Importance Evaluation Section, later in this report). All evaluated areas are located on public land managed by the Coeur d'Alene Field Office. BLM completed these evaluations in accordance with guidance provided in *BLM Manual 1613 – Areas of Critical Environmental Concern.*

WHAT IS AN ACEC?

FLPMA defines an ACEC as an area "within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards." Therefore, private lands and lands administered by other agencies are not included in the boundaries of ACECs. The ACEC designation indicates to the public that the BLM recognizes that an area has significant values and has established special management measures to protect those values. In addition, ACEC designation also serves as a reminder that significant value(s) or resource(s) exist which must be accommodated when future management actions and land use proposals are considered near or within an ACEC.

ACECs differ from other special management designations such as Wilderness Study Areas in that designation by itself does not automatically prohibit or restrict other uses in the area. The one exception is that a mining plan of operation is required for any proposed mining activity within a designated ACEC. The ACEC designation is an administrative designation that is accomplished through the land use planning process. It is unique to the BLM in that no other agency uses this form of designation. The intent of Congress in mandating the designation of ACECs through FLPMA was to give priority to the designation and protection of areas containing truly unique and significant resource values.

THE ACEC DESIGNATION PROCESS

There are several steps in the identification and evaluation of ACECs. These steps include: (1) Nomination of existing or new areas to be considered for ACEC designation; (2) Evaluation of the nominated areas to determine if they meet the relevance and importance criteria; (3) Consideration and analysis of the potential ACECs as management alternatives in the RMP and Environmental Impact Statement (EIS); (4) Public comment on the proposed ACEC designations in the RMP/EIS; and (5) Designation of ACECs in the Record of Decision that approves the RMP. Each of these steps is further described below.

Identification/Nomination. Areas of Critical Environmental Concern are identified, nominated, and designated through the BLM's land use planning process. Nominations from the public are accepted as part of the scoping process during development of a land use plan. All existing ACECs are considered nominations.

Evaluation of Nominations for Relevance and Importance. Nominations are evaluated to determine whether they meet the relevance and importance criteria. For a detailed description of these criteria, see the section called Relevance and Importance Evaluation, found on page five of this report. A nomination must meet one or more of the relevance and importance criteria to be considered a potential ACEC. Potential ACECs are then considered further in the planning process.

Consideration and Analysis of Potential ACECs. Potential ACECs are considered as RMP alternatives are developed. Each potential ACEC is proposed for designation in at least one of the management alternatives. The need for special management and the resulting effects from applying such management are assessed in the associated environmental analysis (EIS). A potential ACEC is proposed for designation if the area requires special management. Special management is defined as management outside of standard or routine practices, and usually includes more detail than other prescriptions contained within the plan. Special management is usually needed when one of the following conditions is met:

- Current management or management activities proposed in the alternative are not sufficient to protect the relevant and important resource.
- The needed management action is considered unusual or outside of the normal range of management practices typically used.
- The change in management is difficult to implement without ACEC designation.

Comment on Proposed ACECs. BLM releases the Draft RMP/EIS, containing the alternatives for ACEC designation, for a 90-day public review and comment period. The public may comment on any aspect of the ACEC analysis at this point in the process. These comments are then considered in preparation of the Proposed RMP/Final EIS. The Proposed RMP/Final EIS is release to the public for a 30-day protest period. During this period the public may protest proposed land use decisions in the document, including those designating ACECs.

Designation. BLM will resolve all protest prior to preparing a Record of Decision that approves the RMP, which includes ACEC designations.

Research Natural Areas (RNA) and Outstanding Natural Areas (ONA)

ACECs may be further classified as RNAs or ONAs if they meet certain requirements for these types of designations. Those nominations which meet these requirements are identified later in this report, in the Relevance and Importance Evaluation section.

RNA: An RNA is defined in 43 CFR 8223.0-5 as "an area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics:

- A typical representation of a common plant or animal association;
- An unusual plant or animal association;

- A threatened or endangered plant or animal species;
- A typical representation of common geologic, soil, or water features;
- Outstanding or unusual geologic, soil, or water features."

ONA: An administratively designated ONA is an area which contains unusual natural characteristics and is managed primarily for educational and recreational purposes.

Nominations

Public scoping for the Coeur d'Alene RMP effort included solicitation of nominations for ACEC designations from the public. Scoping began with the publication of a Notice of Intent in the *Federal Register* on September 3, 2004. BLM distributed newsletters and held public scoping meetings in October 2004. In these publications and meetings, BLM solicited comments from the public on land use planning issues and planning criteria. BLM specifically identified and asked for public comment on the potential issue of special designations (ACECs and Wild and Scenic Rivers). BLM received several comments supporting the designation of ACECs in general; however, no new nominations were identified. The public scoping period officially ended on November 15, 2004.

Although the public made no nominations, the BLM interdisciplinary planning team identified 19 new areas with special values. With the two previously designated ACECs, BLM had a total of 21 nominations to evaluate. Map #46 in Volume III shows the locations of the nominated ACECs which are:

Constitution Mine and Millsite
Farnham Forest
Gamlin Lake
Hecla-Star Tailings Piles
Hideaway Islands (existing RNA/ACEC)
Killarney Lake
Kootenai River Front
Liberal King Millsite
Little North Fork Clearwater Headwaters
Lund Creek (existing RNA/ACEC)
Morton Slough
Mother Lode Mine
Nabob Millsite
Pulaski Tunnel Historic Site
Rex Millsite Mine Tailings Pile
Rochat Divide
Sidney Mine and Millsite
Wallace Landfill
We-Like Mine
Windy Bay
Wolf Lodge Bay

RELEVANCE AND IMPORTANCE EVALUATIONS

Relevance: An area meets the relevance criteria if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to native Americans).

2. A fish and wildlife resource (including but not limited to habitat for endangered, threatened, or sensitive species, or habitat essential for maintaining species diversity).

3. A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities which are terrestrial, aquatic, or riparian; or rare geological features).

4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the RMP process that it has become part of a natural process.

Importance: The value, resource, system, process, or hazard described in the relevance section must have substantial significance and values to meet the importance criteria. This generally means that the value, resource, system, process, or hazard is characterized by one or more of the following:

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.

2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.

3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.

4. Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare.

5. Poses a significant threat to human life and safety or to property.

The information which follows is organized in alphabetical order by name of the nominated area. Appendix A contains detailed maps of the areas.

Constitution Mine and Millsite (See Map #47 in Volume III)

Description of Area: The Constitution Mine and Millsite are partially located on public land managed by BLM in the upper East Fork of Pine Creek, about nine miles southeast of Pinehurst, in Shoshone County Idaho. The portion on public land managed by BLM includes the gated upper mine portal, the upper mill foundations, the upper part of the mine tailings piles associated with the upper mill, and a passive bioreactor mine water treatment system. BLM has undertaken staged removal actions on the mine, mill area, and upper tailings piles to reduce site hazards.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. As part of the planned remedial actions at the site, mine tailings containing heavy metals will remain and be capped onsite.

These metals are susceptible to leaching through natural processes into the surrounding environment. The bioreactor will continue to operate, removing and storing heavy metals within the treatment system onsite. The mine and mill concrete foundations and walls, which have been left to reflect local mining history, could present physical hazards for the public.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human life and safety or property. The principal threat is the mine tailings because heavy metal concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The metals are also susceptible to leaching through natural processes into the surrounding environment. The bioreactor is also of significant concern because it is an open, anaerobic bacteria treatment system which could be a long-term safety risk for the public if access is not restricted. The physical hazards of the remaining mill foundations and walls, and the gated mine portal pose additional threats to public safety.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Farnham Forest (See Map #48 in Volume III)

Description of Area: This area is located approximately 12 air miles northwest of Bonners Ferry, in Boundary County Idaho, along the eastern margin of the Selkirk Mountains. Farnham Forest is composed of a mixture of tree species, ranging from ponderosa pine to western red cedar and western hemlock. The oldest trees at this site are approaching or exceed 300 years old.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource, and a natural process or system. Farnham Forest is within the designated recovery zone for grizzly bears (threatened). This area has been identified by Partners-In-Flight as an Important Birding Area (IBA) at the local level. Partners-In-Flight is a coalition of agency and private organizations interested in migratory birds, which identifies IBAs at the local, state, national, and global scale. Acres covered by old forest communities have declined significantly in northern Idaho compared with historic conditions (Quigley et al. 1997).

Importance Criteria: This nomination meets the importance criteria for more than local significance and for qualities or circumstances which make it rare, irreplaceable, and vulnerable to adverse change. The area provides habitat for a federally listed species, and the old forest community at Farnham Forest is irreplaceable and vulnerable to adverse change.

Findings: This nomination meets the relevance and importance criteria for a fish and wildlife resource, a natural process or system, and provides habitat for a federally listed threatened species. Therefore, it will be carried forward for consideration as a potential RNA/ACEC in the Coeur d'Alene Resource Management Plan. RNA designation is recommended because the old forest community is a typical representation of a common plant or animal association in an ecological stage which has significantly declined in northern Idaho, and would provide educational and research opportunities.

Gamlin Lake (See Map #49 in Volume III)

Description of Area: This lake lies approximately 8 air miles southeast of Sandpoint and one air mile west of Lake Pend Oreille in Bonner County Idaho. The area nominated for ACEC designation includes approximately 59 of the 418 acres that BLM manages surrounding Gamlin Lake. Within this area, upland forest, meadow, riparian, and wetland plant communities are present. Technically speaking, these wetlands may be more accurately labeled peatlands, which have waterlogged substrates and at least 12 inches of peat accumulation.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource, and a natural process or system. The site provides habitat for migratory birds. This area has been identified by Partners-In-Flight as an Important Birding Area (IBA) at the local level. Partners-In-Flight is a coalition of agency and private organizations interested in migratory birds, which identifies IBAs at the local, state, national, and global scale. Five BLM sensitive plant species occur in the peatland and riparian communities (bristly sedge, bulb-bearing water hemlock, large Canadian St. John's-wort, Mingan moonwort, and water clubrush).

Importance Criteria: The area meets the importance criteria for more than local significance, and qualities that make it sensitive or rare. The area provides habitat for BLM sensitive species and other natural processes. In Idaho, low and mid-elevation peatlands of the type that occur at Gamlin Lake, have been recognized as important habitats characterized by a unique suite of environmental conditions and hosting more than 40 rare plant and animal species (Bursik and Moseley 1995). Compared to the largely unbroken stretches of peatlands located more than 600 miles to the north, Idaho peatlands, particularly low elevation valley peatlands, are rare.

Findings: This nomination meets the relevance and importance criteria for a fish and wildlife resource, a natural process or system, and provides habitat for BLM sensitive species. Therefore, it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Hecla-Star Tailings Piles (See Map #50 in Volume III)

Description of Area: The Hecla-Star mine tailings piles are partially located on public land managed by BLM along lower Canyon Creek, approximately two miles northeast of Wallace, in Shoshone County Idaho. Two tailings piles and half of a third pile are on public land managed by BLM, covering about a half mile of floodplain, or 22 acres. The tailings piles on public land managed by BLM are part of a complex of six tailings piles covering about one mile of the lower Canyon Creek floodplain.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. As part of the planned remedial actions at the site, mine tailings containing heavy metals will likely remain onsite. The tailings are over twenty feet deep and are covered with leveled soil or rock caps. The heavy metals are susceptible to leaching through natural processes into the surrounding environment. Presently, a pilot water treatment plant is located on the top of the most upstream pile. Water discharging from the Gem Mine upstream is piped to the treatment plant, where part of the flow is treated and then released along with the remaining untreated water into Canyon Creek.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human health and safety or property. The principal threat is the mine tailings because heavy metal concentrations are above background levels and long term exposure guidelines for humans and wildlife. The tailings are presently capped, but the metals are still susceptible to leaching through natural processes into the surrounding environment. There is also a threat of potential erosion from extreme flood events, since Canyon Creek flows along the south side of the piles.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property. Therefore, it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Hideaway Islands (See Map #51 in Volume III)

Description of Area: This is an existing RNA/ACEC consisting of two islands along the Kootenai River, located approximately five air miles east of Bonners Ferry, in Boundary County Idaho. The Hideaway Islands were designated as an RNA/ACEC in 1985 to preserve riparian plant communities in an unmodified condition for the primary purpose of research and education. The RNA/ACEC was listed as 170 acres in size when it was designated. However, recent, more accurate Geographic Information System (GIS) calculations determined the size of the RNA/ACEC to be 76 acres. Hideaway Islands are managed by BLM in a non-destructive and non-manipulative manner.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource, and a natural process or system. A pair of bald eagles (threatened) established a nest on Hideaway Islands in 1995 and has successfully raised their young there. The islands contain a good example of a black cottonwood/red-osier dogwood riparian plant community in various stages of ecological succession. Three species of cottonwood are found on the islands: Black cottonwood, narrowleaf cottonwood, and eastern cottonwood. Eastern cottonwood is an eastern United States disjunct species that is uncommon in Idaho. The black cottonwood/red-osier dogwood community type is considered very rare in Idaho, with five or fewer occurrences known statewide. A western choke cherry and a Suksdorf hawthorn at this site have been measured as the largest in Idaho.

Importance Criteria: This nomination meets the importance criteria for more than local significance, and qualities or circumstances which make it rare, irreplaceable, and vulnerable to adverse change. The area provides habitat for a federally listed species.

Findings: This nomination meets the relevance and importance criteria for a fish and wildlife resource, a natural process or system, and provides habitat for BLM sensitive species. Therefore, it will be carried forward for consideration as a potential RNA/ACEC in the Coeur d'Alene Resource Management Plan.

Killarney Lake (See Map #52 in Volume III)

Description of Area: This area includes all public land managed by BLM around Killarney Lake and the wetland tract on the southeast side of the lake in the Lower Coeur d'Alene River floodplain. It is about five air miles west of the community of Rose Lake, in Kootenai County Idaho.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource, and a natural hazard. Bull trout (threatened) use Lake Coeur d'Alene for adult/subadult rearing and use the Coeur d'Alene River as a migration corridor. One pair of bald eagles (threatened) has been nesting within a mile of these lands. Migratory birds use the area. The lake and floodplain have been contaminated by mine tailings transported down the Coeur d'Alene River system from the upstream historic mining areas. The principal hazard is the heavy metal concentrations in the tailings that are well above background levels and long term exposure guidelines for humans and wildlife. Studies have shown high metals concentrations in this area have killed or injured tundra swans and other waterfowl (Chupp and Dalke 1964).

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, a threat to human health and safety or property, and has sensitive and vulnerable wildlife issues. The tailings and associated water quality issues are a threat to the public, as well as to wildlife. BLM has implemented measures to protect the public from the tailings around the developed recreation sites at Killarney Lake. However, migratory birds are still exposed to heavy metals through contact with sediments. The heavy metals concentrations of tailings in the undeveloped floodplain areas are above background levels and long term exposure guidelines for humans and wildlife.

Findings: This nomination meets the relevance and importance criteria for a fish and wildlife resource, safety and public welfare, and threat to human life and safety or property. Therefore it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Kootenai River Front (See Map #53 in Volume III)

Description of Area: This area is in Boundary County, Idaho and includes all public land managed by BLM along the Kootenai River within the canyon, beginning approximately five air miles east of Bonners Ferry at Hideaway Islands, and continuing upstream to the Idaho-Montana state line.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource. Kootenai River sturgeon (endangered), bull trout (threatened) and westslope cutthroat trout (BLM sensitive) use the Kootenai River. One pair of bald eagles (threatened) has been nesting within the canyon since 1990, and a second pair of eagles has been nesting there since 1996, with both eagle pairs having successfully reproduced. Annual monitoring of all bald eagle nests from Bonners Ferry upstream to the Idaho-Montana Stateline has documented the pairs of birds moving to new nest trees within their established nesting territory. Therefore, any and all BLM public lands could provide potential nest sites. An average of ten bald eagles has wintered along the Kootenai River from Bonners Ferry to the Idaho-Montana stateline since 1980, when biologists began monitoring mid-winter populations of eagles.

Importance Criteria: This nomination meets the importance criteria for more than local significance, and qualities or circumstances that make it endangered and/or threatened. This area provides habitat for federally listed threatened and endangered species.

Findings: This nomination meets the relevance and importance criteria for a fish and wildlife resource, and a natural process or system, and provides habitat for federally listed threatened and endangered species. Therefore it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Liberal King Millsite (See Map #54 in Volume III)

Description of Area: The Liberal King Millsite is located on a hillside overlooking Pine Creek, about three air miles south of Pinehurst, in Shoshone County Idaho. The abandoned mill buildings and southern part of the rock dump are on public land managed by BLM. The mine and the northern part of the rock dump are on private land.

Relevance Criteria: This nomination meets the relevance criteria for cultural value and a natural hazard. It has the only example of a standing mining mill site in federal ownership in the Silver Valley, an area where mining has played a significant part in local history. The main mill building is a highly visible example of historic mining structures. The site meets the criteria for natural hazard because high concentrations of heavy metals remain in the mill area and may be subsequently released by natural processes into the surrounding environment.

Importance Criteria: The nomination meets the importance criteria for more than local significance, and irreplaceable qualities. This nomination also meets the criteria for safety and public welfare, and threat to human health and safety or property. The principal threat is the mill area because heavy metal concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The metals are also susceptible to leaching through natural processes into the surrounding environment. The safety concerns are physical hazards and contaminants associated with the mill buildings and rock dump.

Findings: This nomination meets the relevance and importance criteria for cultural value, a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Little North Fork Clearwater Headwaters (See Map #55 in Volume III)

Description of Area: This nomination includes public land managed by BLM associated with the system of streams that join together to form the headwaters of the Little North Fork Clearwater River, and the Marble Creek headwaters vicinity (including Freezeout and Delaney Creeks) located approximately 15 air miles northeast of Clarkia, in Shoshone County Idaho. A portion of the area was proposed as an Outstanding Natural Area (ONA) in 1986 by the North Idaho Proposed MFP Amendment and Final EIS for Wilderness but was never formally designated. It is adjacent to the existing Lund Creek RNA/ACEC.

Relevance Criteria: This nomination meets the relevance criteria for scenic value, and a fish and wildlife resource. The scenery is rated as Class A, meaning it is distinctive within its physiographic setting. Bull trout (threatened) and westslope cutthroat trout (BLM sensitive) use this segment of the Clearwater River for spawning, rearing, and as a migration corridor. The upper portion of Marble Creek itself provides spawning and rearing habitat for westslope cutthroat trout. Bull trout use the portion of Marble Creek downstream of the BLM lands for spawning and rearing. Suitable habitat for the Coeur d'Alene salamander (BLM sensitive) exists within this portion of the Clearwater River system.

Importance Criteria: This nomination meets the relevance criteria for more than local significance, and qualities or circumstances that make it threatened, exemplary, or unique. This area provides habitat for federally listed and BLM sensitive species.

Findings: This nomination meets the relevance and importance criteria for scenic value, a fish and wildlife resource, and provides habitat for BLM sensitive species. The combination of unusual scenic, fisheries, and wildlife resources meets the requirement for an ONA. Therefore it will be carried forward for consideration as a potential ONA/ACEC in the Coeur d'Alene Resource Management Plan.

Lund Creek (See Map #55 in Volume III)

Description of Area: This is an existing RNA/ACEC. It includes 2905 acres of public land, and is located approximately 15 air miles east of Clarkia, in Shoshone County Idaho. It was designated in 1989 to protect unique natural features and ecological diversity. Scientists and educators are encouraged to use the area for study purposes; however, all uses must be non-destructive. No vegetative manipulation (including timber harvest) or vehicle use is permitted.

Relevance Criteria: This nomination meets the relevance criteria for scenic value, a fish and wildlife resource, and a natural process or system. The scenery in the Lund Creek area is rated as Class A, meaning it is distinctive within its physiographic setting. Bull trout (threatened) and westslope cutthroat trout (BLM sensitive) use this stream for spawning and rearing. Suitable habitat for the Coeur d'Alene salamander (BLM sensitive) is present. Old growth mountain hemlock and subalpine fir are found in the drainage. A number of aquatic features such as Little Lost Lake, bogs, marshes, streams, and waterfalls are present. Lund Creek itself and its associated riparian plant community are rated as being in very good ecological condition. Bogs and marshes in the Grandmother Mountain area are considered subalpine peatlands, characterized by a mixture of plant species common to the mountain systems of western North America, as well as plant species more typical of boreal habitats occurring hundreds of miles north of the planning area. Although peatlands comprise a very small percentage of vegetation across the landscape, they are among the most floristically diverse vegetation types.

Importance Criteria: This nomination meets the importance criteria for more than local significance, and qualities or circumstances which make it rare, irreplaceable, threatened, and vulnerable to adverse change. This area provides habitat for federally listed and BLM sensitive species.
Findings: This nomination meets the relevance and importance criteria for scenic value, a fish and wildlife resource, a natural process or system, and provides habitat for BLM sensitive species. Therefore it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Morton Slough (See Map #57 in Volume III)

Description of Area: This nomination consists of three isolated tracts totaling 119 acres in the vicinity of Morton Slough, which is connected to the Pend Oreille River. The tracts are located approximately eight miles southwest of Sandpoint, in Bonner County Idaho.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource and a natural process or system. A pair of bald eagles (threatened) first nested on one of the parcels in 1995 and has successfully reproduced there. The 400-acre slough area along the Pend Oreille River has been identified by Partners-In-Flight as an Important Birding Area (IBA) at the state level. This organization also acknowledges the eagle nest on public land managed by BLM. Partners-In-Flight is a coalition of agency and private organizations interested in migratory birds, which identifies IBAs at the local, state, national, and global scale. Old-growth ponderosa pine occurs on the other two parcels. The scientific assessment done for the Interior Columbia Basin found that vegetation has changed significantly from historic conditions, especially the loss of "open" stands of mature and old growth ponderosa pine forests (Quigley et al. 1997, Wisdom et al. 2000). This area provides habitat for BLM sensitive wildlife species that are associated with mature and old growth ponderosa pine stands.

Importance Criteria: This nomination meets the importance criteria for more than local significance, and qualities or circumstances which make it rare, irreplaceable, and vulnerable to adverse change. Researchers report that 60-70% of old-growth ponderosa pine forests in Idaho have been degraded due to fire suppression and selective logging of larger-diameter trees (Noss et al. 1995). The old growth ponderosa pine stands within this nominated area are among the few that have not been degraded. This area also provides habitat for federally listed species, BLM sensitive species, and species linked to old growth ponderosa pine ecosystems.

Findings: This nomination meets the relevance and importance criteria for a fish and wildlife resource, and a natural process or system, and provides habitat for BLM sensitive species. Therefore, it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Mother Lode Mine (See Map #56 in Volume III)

Description of Area: The Mother Lode Mine is located partly on public land managed by BLM along Prichard Creek, approximately two miles east of Murray, in Shoshone County Idaho. The gated mine portal, a steep re-graded rock dump, and a passive bioreactor mine water treatment system are on public land managed by BLM.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. Although removal actions have occurred at the site, some heavy metals contamination remains in the vicinity of the mine. These heavy metals are susceptible to leaching through natural processes into the surrounding environment. Water with high heavy metals levels will continue to discharge from the mine. The bioreactor will continue to operate, removing and storing heavy metals within the treatment system onsite.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human health and safety or property. The principal threat is the mine discharge and mine wastes because heavy metal concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The bioreactor is also of significant concern because it is an open, anaerobic bacteria treatment system which could be a long-term safety risk for the public if access is not restricted. Another safety issue is the potential physical hazard from the gated mine portal.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property. Therefore it will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Nabob Millsite (See Map #54 in Volume III)

Description of Area: The Nabob Millsite is located partly on public land managed by BLM at the mouth of Nabob Creek in the lower East Fork of Pine Creek, about four air miles south of Pinehurst, in Shoshone County Idaho. The mine tailings pile from the current mill, the old mill foundations, and the current mill buildings are on public land managed by BLM. BLM and the mill operator have undertaken staged removal actions on the tailings pile to reduce site hazards due to high heavy metal concentrations. The mill building is still under a millsite claim, and the operator has been removing equipment and parts of the building structure.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. As part of the removal actions and planned remedial actions at the site, mine tailings containing heavy metals will remain and be capped onsite. The metals are susceptible to leaching through natural processes into the surrounding environment. The tailings are over forty feet deep, and Nabob Creek flows along the south side of the tailings embankment.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human health and safety or property. The principal threat is the tailings and mill area because heavy metals concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The safety concerns are the physical hazards and contaminants around the mill buildings, and the stability of the tailings pile and potential erosion from creek flooding.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Pulaski Tunnel Historic Site (See Map #58 in Volume III)

Description of Area: The Pulaski Tunnel is located about one mile southwest of Wallace, in Shoshone County Idaho. The area is in a steep-sided creek bottom and includes a mine adit (referred to as a tunnel) and trail.

Relevance Criteria: The Pulaski Tunnel area meets the relevance criteria since it is a significant cultural resource site associated with saving the lives of firefighters in the 1910 fires. The site, which is a mine adit originally used for mining and then later used by Pulaski to save his crew from being overtaken by a raging fire, is currently listed on the National Register of Historic Places.

Importance Criteria: The site meets the importance criteria since it represents a significant event in our history and is recognized as having national significance. This area could be threatened by future mining activity.

Findings: This site meets the relevance and importance criteria for historic and cultural values and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Rex Millsite Mine Tailings Pile (See Map #59 in Volume III)

Description of Area: The Rex Millsite Mine Tailings Pile is located partially on public land managed by BLM, in a draw above the East Fork of Nine Mile Creek, approximately six air miles northeast of Wallace, in Shoshone County Idaho. Over half of the tailings pile and a dam between the draw and the tailings pile are located on public land. The Rex Mine, rock dump and mill, and the rest of the tailings pile are on private land, and are therefore not part of the nominated area.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. As part of the planned remedial actions at the site, mine tailings containing heavy metals will likely remain onsite. The tailings are presently exposed (not capped), with the metals susceptible to leaching through natural processes into the surrounding environment. The tailings are over sixty feet deep, and the dam face measures over 110 feet high down to the draw. The creek has been diverted to flow along the southeast edge of the dam.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human health and safety or property. The principal threat is the tailings because heavy metal concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The safety concerns are physical hazards, the stability of the tailings pile and dam, and potential erosion of the tailings due to flooding.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Rochat Divide (See Map #60 in Volume III)

Description of the Area: This area is located in Benewah, Kootenai, and Shoshone Counties of Idaho, on the major watershed divide between the St. Joe River and Coeur d'Alene River. The south end is near St. Joe Baldy peak and the area trends north to Latour Baldy peak. Latour Baldy lies approximately 6 miles southwest of Pinehurst, Idaho. A portion of the area was proposed as an ONA in 1986 by the North Idaho Proposed MFP Amendment and Final EIS for Wilderness but was never formally designated. The area has virtually unlimited vistas and opportunity for solitude. It is important for past and current Native American spiritual use, scenic qualities, and important wildlife habitat.

Relevance Criteria: This nomination meets the relevance criteria for cultural, scenic, and wildlife resources. The divide between the two major river drainages serves as a significant spiritual area for the Coeur d'Alene Tribe. The area offers outstanding views of the region and possesses Class A scenery, meaning it is distinctive within its physiographic setting. The area provides habitat for the wolverine (BLM sensitive). Female wolverines den underneath boulders and snow within the area's cirque basins.

Importance Criteria: This nomination meets the importance criteria for qualities or circumstances which make it rare, irreplaceable, and vulnerable to adverse change. Scenic values are rated high for this area, and the viewshed is very vulnerable to adverse change. Research in the Sawtooth Mountains of central Idaho demonstrated that human disturbance near wolverine den sites will cause the female to abandon her den and her young inside (Copeland 1996). This area also meets the importance criteria for cultural because of its spiritual values for the Coeur d'Alene Tribe.

Findings: This nomination meets the relevance and importance criteria for cultural, scenic, and wildlife. The combination of unusual cultural, scenic, and wildlife resources meets the requirement for an ONA. Therefore it will be carried forward for consideration as a potential ONA/ACEC in the Coeur d'Alene Resource Management Plan

Sidney Mine and Millsite (See Map #61 in Volume III)

Description of Area: The Sidney Mine and Millsite are located largely on public land managed by BLM in upper Red Cloud Creek, a tributary to Highland Creek in the East Fork of Pine Creek drainage, approximately 4 air miles southeast of Pinehurst, in Shoshone County Idaho. The gated mine portal, the main mill foundations, the steep-sloped upper rock dump, and a passive bioreactor mine water treatment system are on public land. To reduce the site hazards BLM has undertaken staged removal actions at the mine, mill area, stream diversion, and upper rock dump.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. Even after removal actions at the site, some mine- and rock dump-area heavy metals contamination will remain. These metals are susceptible to leaching through natural processes into the surrounding environment. Water with high metals levels will continue to discharge from the mine. The bioreactor will continue to operate, removing and storing metals within the system onsite.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare and threat to human health and safety or property. The principal threat is the mine discharge and mill wastes because heavy metals concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The bioreactor is also of significant concern because it is an open, anaerobic bacteria treatment system which could be a long-term safety risk for the public if access is not restricted. The physical hazards of the remaining mill foundations and walls, the steep rock dump, and the gated mine portal pose additional threats to public safety.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Wallace Landfill (See Map #50 in Volume III)

Description of Area: A portion of the southeast corner of the Wallace Landfill is located on public land managed by BLM in Lower Canyon Creek, approximately 1 air mile northeast of Wallace, in Shoshone County Idaho.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. The landfill has buried deleterious materials. Seepage of potentially contaminated ground water and precipitation run-off from the site has been observed near the creek. Potentially hazardous materials located at the site are susceptible to erosion or leaching through natural processes into the surrounding environment.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human health and safety or property. The main safety concern is the buried deleterious materials. The principal threat comes from leached substances and buried materials.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

We-Like Mine (See Map #62 in Volume III)

Description of Area: The We-Like Mine is located largely on public land managed by BLM in Grouse Creek approximately two air miles northwest of Mullan, in Shoshone County Idaho. The site includes the gated mine portal, a steep-sloped rock dump, and a pilot passive bioreactor mine water treatment system.

Relevance Criteria: This nomination meets the relevance criteria for a natural hazard. With the planned remediation at the site, some mine-area heavy metals contamination will remain. These metals are susceptible to leaching through natural processes into the surrounding environment. Water with high metals level will continue to discharge from the mine. The bioreactor will continue to operate, removing and storing metals within the system onsite.

Importance Criteria: This nomination meets the importance criteria for safety and public welfare, and threat to human health and safety or property. The principal threat is the mine discharge and mine wastes because heavy metals concentrations are well above background levels and long term exposure guidelines for humans and wildlife. The metals also are susceptible to leaching through natural processes into the surrounding environment. The bioreactor is also a concern because it is an anaerobic bacteria treatment tank system which could be a long-term safety risk for the public if access is not restricted. There are also physical hazards onsite, including the gated mine portal and steep rock dump, which pose additional threats to public safety.

Findings: This nomination meets the relevance and importance criteria for a natural hazard, safety and public welfare, and threat to human life and safety or property, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Windy Bay (See Map #63 in Volume III)

Description of Area: This area is located approximately 4 air miles north of Worley, in Kootenai County Idaho, along the south side of Windy Bay on Lake Coeur d'Alene. A small remnant (16 acres) of rough fescue grassland grows along the edge of the bluff above the bay, situated between gently-rolling agricultural fields and the steep, forested hillsides that descend down to the bay.

Relevance Criteria: This nomination meets the relevance criteria for a natural process or system. Rough fescue grassland is very rare in Idaho, known from less than five scattered sites along the eastern margin of the Palouse Prairie.

Importance Criteria: This nomination meets the importance criteria for more than local significance, and qualities or circumstances which make it rare, irreplaceable, and vulnerable to adverse change. Nearly 100% of the area historically occupied by the Palouse Prairie in eastern Washington and adjacent Idaho has been converted to agricultural use. Remnants of Palouse Prairie vegetation, which includes rough fescue grassland along the eastern boundary, are now restricted to edges of cultivated fields or rocky slopes along the margins of the former Prairie (Lichthardt and Moseley 1997). The Palouse Prairie is considered one of the most endangered ecosystems in the United States (Noss 1995, Noss et al. 1995).

Findings: This nomination meets the relevance and importance criteria for a natural process or system and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

Wolf Lodge Bay (See Map #64 in Volume III)

Description of Area: This area includes all the public land managed by BLM surrounding Wolf Lodge, Beauty, and Blue Creek Bays of Lake Coeur d'Alene. These bays are located approximately 5 air miles southeast of Coeur d'Alene, in Kootenai County Idaho.

Relevance Criteria: This nomination meets the relevance criteria for a fish and wildlife resource. Bull trout (threatened) and westslope cutthroat trout (BLM sensitive) use portions of the lake for adult/subadult rearing. Blue Creek also provides spawning and rearing habitat for westslope cutthroat trout. Migratory bald eagles (threatened) use the area for foraging and over-wintering habitat. The first Coeur d'Alene salamander (BLM sensitive) known to science was observed along the water's edge of Wolf Lodge Bay. Other BLM sensitive and migratory birds use the area. Partners-In-Flight, which is a coalition of agency and private organizations interested in migratory birds, have identified Important Birding Areas (IBA) at the local, state, national, and global scale. This area is an IBA at the state level.

Importance Criteria: This nomination meets the importance criteria for more than locally significant, and qualities or circumstances which make it threatened or endangered. This area provides habitat for federally listed and BLM sensitive species.

Findings: This nomination meets the relevance and importance criteria for fish and wildlife resource, provides habitat for BLM sensitive species, and will be carried forward for consideration as a potential ACEC in the Coeur d'Alene Resource Management Plan.

SUMMARY AND CONCLUSIONS

BLM found that all 21 areas nominated for ACEC status met the relevance and importance criteria. These areas are now referred to as "Potential ACECs" and will be considered and further analyzed in the alternatives for the RMP. Table 1 contains a summary of these potential areas.

Table G-2: Potential Areas of Critical Environmental Concern

Area Name	Values	Acres
Constitution Mine & Millsite	Mine tailings hazard, bioreactor safety concern, cultural	6
Farnham Forest	Grizzly bear, old growth forest	29
Gamlin Lake	Wetland and riparian areas, Idaho BLM sensitive plant species, migratory birds	59
Hecla-Star Tailings Piles	Mine tailings hazard	22
Hideaway Islands	Designated RNA/ACEC, bald eagles, rare riparian plant community	76
Killarney Lake	Bull trout, bald eagles, migratory birds, mine tailings hazard	69
Kootenai River Front	Kootenai River sturgeon, bull trout, westslope cutthroat trout, bald eagles	533
Liberal King Millsite	Historic/cultural, heavy metals hazard, mill buildings and rock dump safety concerns	2
Little North Fork Clearwater River	Scenic, bull trout, westslope cutthroat trout, habitat for Coeur d'Alene salamander	9592

Table G-2: Potential Areas of Critical Environmental Concern

Area Name	Values	Acres
Lund Creek	Designated RNA/ACEC, bull trout, westslope cutthroat trout, habitat for Coeur d'Alene salamander, old growth mountain hemlock and subalpine fir, Little Lost Lake, wetland and riparian communities	2905
Morton Slough	Bald eagles, old growth ponderosa pine, habitat for BLM Sensitive wildlife	119
Mother Lode Mine	Heavy metals hazard, bioreactor safety concern	0.80
Nabob Millsite	Mine tailings hazard, mill buildings safety concern	8
Pulaski Tunnel Historic Site	Historic, cultural	58
Rex Millsite Tailings Pile	Mine tailings hazard, dam stability issue	6
Rochat Divide	Cultural, scenic, wolverine	11,653
Sidney Mine & Millsite	Heavy metals hazard, rock dump, bioreactor safety concern	6
Wallace Landfill	Deleterious materials hazard, contaminated seepage and run-off	0.3
We-Like Mine	Heavy metals hazard, rock dump, bioreactor safety concern	0.3
Windy Bay	Rare grassland plant community	16
Wolf Lodge Bay	Bull trout, westslope cutthroat trout, bald eagles, Coeur d'Alene salamander, migratory birds	1094

APPENDIX H – MINERALS RFD

Appendix H: Reasonably Foreseeable Development Scenarios for Minerals

Introduction

This appendix describes the Reasonably Foreseeable Development (RFD) scenarios for leasable, locatable, and salable mineral commodities. The purpose of this information is to provide a model that predicts the level and type of future mineral activity in the planning area, and will serve as a basis for cumulative impact analysis as called for in the Supplemental Program Guidance for Energy and Mineral Resources (BLM Manual Section 1624). The RFD first describes the steps involved in developing a mineral deposit, with presentation of hypothetical exploration and production operations. The current activity levels are discussed in Chapter 2 of this document. Future trends and assumptions affecting mineral activity are discussed here, followed by the prediction and identification of anticipated mineral exploration and development.

Scope

The development scenarios are limited in scope to BLM managed lands within the planning area. The RFD is based on the known, or inferred mineral resource capabilities of the lands involved, and applies the conditions and assumptions discussed under Future Trends and Assumptions. Changes in available geologic data and/or economic conditions would alter the RFD, and some deviation is to be expected over time.

Leasable Mineral Resources

Oil and Gas:

Future Trends and Assumptions

Based on the history of past drilling and foreseeable development potential in the Coeur d'Alene Field Office, activity over the next 15 to 20 years would continue to be low. It is anticipated that oil and gas activity could consist of the issuance of 1 or 2 geophysical surveys and perhaps the drilling of 1 or 2 exploratory holes. However, it is noted that this level of activity is highly speculative due to the fact only two exploratory oil/gas wells have ever been recorded in the planning area. These two wells were drilled in 1928-1929 and did not encounter any hydrocarbons. Also, because there is limited information concerning possible occurrence of hydrocarbons in the planning area, any activity associated with oil and gas could occur anywhere in the planning area.

Because of the low potential for development of hydrocarbons we do not anticipate the discovery of a producible oil and gas field during the period covered by this plan; however, the potential surface impacts associated with the discovery and development of a small oil/gas field are given in the following sections.

The development and reclamation of oil and gas sites would be subject to 43 CFR 3100.

Geophysical Exploration

Geophysical exploration is conducted to determine the subsurface structure of an area. Three geophysical survey techniques are generally used to define subsurface characteristics through measurements of the gravitational field, magnetic field, and seismic reflections.

Gravity and Magnetic field surveys: These two techniques involve small portable measuring units which are easily transported via light off-road vehicles, such as four-wheel drive pickups and jeeps, or aircraft. Both off-road and on-road travel may be necessary in these two types of surveys. Usually a three-man crew transported by one or two vehicles is required. Sometimes small holes (approximately 1 inch by 2 inches by 2 inches) are hand dug for instrument placement at the survey measurement points. These two survey methods can make measurements along defined lines, but it is more common to have a grid of discrete measurement stations.

Seismic Reflection surveys: This technique is the most common of the geophysical methods and produces the most detailed subsurface information. Seismic surveys are conducted by sending shock waves through the Earth's surface. The waves are generated by a small explosion or through mechanically beating the ground surface with a thumping or vibrating platform. The thumper and vibrator methods pound or vibrate the ground surface using four large trucks (typically), each equipped with pads about 4-foot square. The pads are lowered to the ground, and the vibrators are electronically triggered from the recording truck. Once information is recorded, the trucks are moved forward a short distance and the process is repeated. Less than 50 square feet of surface area is required to operate the equipment at each recording site.

The small explosive method requires charges to be detonated on the surface or in a drill hole. In the drill hole method, holes for the charges are drilled utilizing truck-mounted or portable air drills to drill small-diameter (2 to 6 inch) holes to depths of 100 to 200 feet. Generally 4 to 12 holes are drilled per mile of line and a 5 to 50 pound charge of explosives is placed in the hole, covered, and detonated. The shock wave created by the detonation is recorded by geophones placed in a linear fashion on the surface. In rugged terrain, a portable drill carried by helicopter can sometimes be used. A typical drilling seismic operation may utilize 10 to 15 men operating 5 to 7 trucks. Under normal conditions, 3 to 5 miles of line can be surveyed daily using this method. The vehicles used for a drilling program may include heavy truck-mounted drill rigs, track-mounted air rigs, water trucks, a computer recording truck, and several light pickups for the surveyors, shot hole crew, geophone crew, permit man, and party chief.

The surface charge method utilizes 1 to 5 pound charges attached to wooden laths 3 to 8 feet above the ground. Placing the charges lower than 6 feet usually results in the destruction of vegetation, while placing the charges higher, or on the surface of deep snow, results in little visible surface disturbance.

Public and private roads and trails are used where possible. However, off-road cross-country travel is also necessary in some cases. Graders and dozers may be required to provide access to remote areas. Several trips a day are made along a seismograph line, usually resulting in a well defined two-track trail. Drilling water, when needed, is usually obtained from private landowners.

During the life of this plan, it is anticipated that 1 or 2 notices of intent involving seismic reflection and gravity/magnetic field surveys could be filed.

Drilling Phase

An operator would determine if they wished to pursue an oil and gas lease based on information collected during geophysical exploration. If a lease is issued, then the lessee would be required to submit an application for a permit to drill (APD). Once the APD is approved, the operator may begin construction activities in accordance with any stipulations and conditions. When a site is chosen that necessitates the construction of an access road, the length of road may vary, but usually the shortest feasible route is selected to reduce the haul distance and construction costs. Environmental factors or a landowner's wishes may dictate a longer route in some cases. Drilling activity in the planning area is predicted to be done using existing roads and constructing short (approximately 0.25 mile) roads to access drill site locations.

During the first phase of drilling, the operator would move construction equipment over existing maintained roads to the point where the access road begins. No more than 0.25 mile of moderate duty access road with a cinder or gravel surface 18 to 20 feet wide is anticipated to be constructed. The total surface disturbance width would average 40 feet with ditches, cuts, and fill. The second part of the drilling phase is the construction of the drilling pad or platform. The likely duration of well development, testing, and abandonment is predicted to be less than 12 months per drill site. The total disturbance for each exploratory well and any new road constructed to that drill site is expected to be no more than 6 acres.

Based on past oil and gas drilling in North Idaho, it is projected that 1 or 2 exploratory "wildcat" well(s) could be drilled on BLM-administered land in the planning area. The estimated success rate of finding hydrocarbons is predicted to be less than 10 percent, based on the average U.S. wildcat well success rate and the lack of any indications of hydrocarbons in the planning area. The potential for oil and gas occurrence is low throughout BLM lands therefore target areas are unknown. The total surface disturbance caused by exploratory drilling over the life of the plan is expected to be no more than 15 acres.

Field Development and Production

No field development is expected to occur during the life of the plan. However, the following scenario describes operations and impacts associated with field development and production.

Small deposits of oil or gas discovered in the planning area would not be economic to develop. The minimum size that would be economic would be a field containing reserves of 50 to 60 billion cubic feet of gas over a productive lifespan of 10 years. The total area of such a field would be 200 acres with a likely well spacing of 160 acres. The field would require four development wells in addition to the discovery well. Each development well would require 0.25 mile of road, likely cinder or gravel surfaced, and would have a width of about 20 feet. The width of the surface disturbance associated with roads would average 40 feet. Produced gas would be carried by pipelines estimated to average 30 to 60 miles in length, not all of which would necessarily be on BLM lands. The width of surface disturbance for pipelines would average 30 feet. Any produced oil would likely be trucked to transmission lines in Washington for delivery to the west coast. Well servicing requirements would be provided by established service companies.

The total anticipated surface disturbance would be; 8 acres for well pads, 5 acres for roads, 13 acres for field development, and 600 acres for pipelines. In the unlikely event that an economic field is discovered, the total surface disturbance caused by exploration and development over the life of the plan is expected to be between 620 to 630 acres.

Plugging and Abandonment

Wells that are completed as dry holes are plugged according to a plan designed specifically for the downhole conditions of each well. Plugging is accomplished by the placing of cement plugs at strategic locations downhole and up to the surface. Drilling mud is used as a spacer between plugs to prevent communication between fluid bearing zones. The casing is cut off at least 3 feet below ground level and capped by welding a steel plate on the casing stub. After plugging, all equipment and debris would be removed and the site would be restored as near as reasonably possible to its original condition.

It is predicted that the 1 or 2 exploratory wells drilled would be plugged and abandoned.

Geothermal Resources:

Future Trends and Assumptions

With environmental protection and enhancement being a major consideration, clean, low-impacting energy sources are becoming more important. Although abundant geothermal resources are thought to be present in the Northwest (Washington, Oregon, Idaho, and western Montana), none have been identified in the planning area. As the demand for environmentally-friendly energy sources increases, the planning area could attract renewed interest.

The development and reclamation of geothermal sites would be subject to the regulations found in 43 CFR 3200.

Geophysical/Geochemical Exploration

In addition to the geophysical methods discussed in the Oil and Gas section, the following exploration techniques are often employed in geothermal prospecting:

Microseismic: Small seismometers are buried at a shallow depth (hand-dug holes) and transmit signals from naturally-occurring, extremely minor seismic activity (micro-earthquakes) to an amplifier on the surface. Stations are located away from roads to avoid traffic "noise." These units are often backpacked into areas inaccessible to vehicles.

Resistivity: Induced polarization techniques are used to measure the resistance of subsurface rocks to the passage of an electric current. A vehicle-mounted transmitter sends pulses of electrical current into the ground through two widely-spaced electrodes (usually about 2 miles apart). The behavior of these electrical pulses as they travel through underlying rocks is recorded by "pots" (potential electrodes), small ceramic devices that receive the current at different locations. The electrodes are either short (2 to 3 feet) rods driven into the ground, or aluminum foil shallowly buried over an area of several square feet. Two or three small trucks transport the crew of 3 to 5 people to transmitting and receiving sites.

Telluric: A string of "pots" record the variations in the natural electrical currents in the earth. No transmitter is required. Small trucks are used to transport the crew and equipment.

Radiometric: Radioactive emissions (generally radon gas) associated with geothermal resources are usually measured using a hand-held scintillometer, often at hot spring locations. Another method used involves placing plastic cups containing small detector strips sensitive to alpha radiation either on the surface or in shallow hand-dug holes. If holes are dug, they are covered, and the cups left in place for 3 to 4 weeks. At the end of the sampling period, the cups are retrieved and all holes are backfilled. These surveys can be conducted on foot or with the aid of light vehicles.

Geochemical Surveys: Geochemical surveys are usually conducted at hot springs by taking water samples directly from the spring. Sampling for mercury associated with geothermal resources is often done by taking soil samples using hand tools. These surveys can be conducted on foot or with the aid of light vehicles.

Temperature Gradient Drill Hole Surveys: Temperature gradient holes are used to determine the rate of change of temperature with respect to depth. Temperature gradient holes usually vary in diameter from about 3.5 to 4.5 inches, and from a few hundred feet to about 5,000 feet in depth. They are drilled using rotary or coring methods. Approximately 0.1 to 0.25 acre per drill hole would be disturbed. A typical drill site could contain the drill rig, most likely truck-mounted, water tank(s), fuel tank, supply trailer, and a small trailer for the workers. Drilling mud and fluids would be contained in earthen pits or steel tanks. Water for drilling would be hauled in water trucks, or if suitable water sources are close, could be piped directly to the site. Water consumption could range from about 2,000 to 6,000 gallons per day, with as much as 20,000 gallons per day under extreme lost circulation conditions.

Other equipment that would be utilized includes large flatbed trucks to haul drill rod, casing, and other drilling supplies, and in some cases, special cementing and bulk cement trucks. Two or three small vehicles would be used for transporting workers. In most cases, existing roads would be used. It is estimated that short spur trails (usually less than a few hundred yards long) would be bladed for less than 10 percent of these holes. All holes would be plugged and abandoned to protect both surface and subsurface resources, including aquifers, and reclamation of disturbed areas would be required, unless some benefit to the public could be gained; for example, a water well or camping area.

Depending upon the location and proposed depth of the drill hole, detailed plans of operation that cover drilling methods, casing and cementing programs, well control, and plugging and abandonment may be required.

Based upon past geothermal exploration in the planning area and the lack of an identified geothermal resource, it is anticipated that during the life of this plan less than 5 notices of intent to conduct geothermal exploration would be filed.

Drilling and Testing

Drilling to determine the presence of, test, develop, produce, or inject geothermal resources can be done only on land covered by a geothermal resources lease. A typical geothermal well drilling operation would require 2 to 4 acres for a well pad, including reserve pit, and 0.5 mile of moderate duty access road with a surface 18 to 20 feet wide, totaling up to 40 feet wide with ditches, cuts, and fills. Existing roads would be used whenever possible. Total surface disturbance for each well, and any new road is expected to be no more than 6 acres. In some cases, more than one production well could be drilled from one pad. Well spacing would be determined by the authorized officer after considering topography, reservoir characteristics, optimum number of wells for proposed use, protection of correlative rights, potential for well interference, interference with multiple use of lands, and protection of the surface and subsurface environment. Close coordination with the State would take place. It is anticipated that the duration of well development, testing, and if dry, abandonment, would be 4 months.

Plugging and Abandonment

Prior to abandonment, the operator would be required to plug the hole to prevent contamination of aquifers and any impacts to subsurface and surface resources. Plugging is accomplished by the placing of cement plugs at strategic locations downhole and up to the surface. Depending upon the formations encountered, drilling mud could be used as a spacer between plugs to prevent communication between fluid bearing zones. The casing is cut off at least 3 feet below ground level and capped by welding a steel plate on the casing stub. After plugging, all equipment and debris would be removed, and the site would be restored as near as reasonably possible to its original condition. A dry hole marker is often placed at the surface to identify the well location. If the surface owner prefers, the marker may be buried. Any new roads not needed for other purposes would be reclaimed.

It is estimated that 1 or 2 exploratory wells would be plugged and abandoned during the life of this plan.

Geothermal Power Plant Development

It is projected that no geothermal power plants would be constructed during the life of this plan. However, the following scenario describes operations and impacts associated with development of a geothermal power plant. Before geothermal development could occur, site-specific baseline studies and environmental analyses, with public involvement, would be done. The scenario below describes the level of disturbance that would likely occur from the development of a 24 megawatt power plant.

Five to seven production wells and one or two injection wells would be drilled. It is anticipated that access would be provided by existing roads, and the construction of short (0.5 to 1-mile long) roads with a surface of 18 to 20 feet wide, totalling up to 40 feet wide with ditches, cuts, and fills. Surface disturbance from well pad and road construction would probably range from 2 to 6 acres per well. The power plant facility, including separators, energy converters, turbines, generators, condensers, cooling towers, and switchyard, would involve an estimated 5 to 10 acres. Pipelines and powerlines would disturb an additional 3 to 6 acres.

If a water cooling system is employed, 1 to 3 water wells, requiring about 0.25 acre per well, would be drilled, unless the cooling water was obtained from the geothermal steam condensate. Depending upon location, terrain, geothermal reservoir characteristics, and type of generating facility, total surface disturbance for a 24 megawatt (gross) geothermal power plant, and ancillary structures, would probably range from about 26 to 76 acres, or about 1 to 3 acres per megawatt. After construction, approximately one-third to one-half of the disturbed area would be revegetated. Prior to abandonment, 30 to 50 years later, the remaining disturbed area would be reclaimed.

Direct Use of Geothermal Energy

Low- and moderate-temperature (50 to 300 degrees F) geothermal resources have many direct use applications. Direct applications, and potential development scenarios, include space heating and cooling of residences and businesses, applications in agriculture, aquaculture, and industry, and recreational and therapeutical bathing. Depending upon the type of use and magnitude of operation, surface disturbance could range from a few acres for a well and greenhouses, or food processing facility, to tens of acres for larger agricultural or aquacultural developments.

It is anticipated that no direct use of geothermal energy will occur during the plan period.

Solid Minerals:

Future Trends and Assumptions

The potential for the occurrence of solid leasable minerals (both energy and non-energy) has been rated as low to zero throughout the planning area. Therefore, there is no anticipated future activity related to this resource.

Salable Mineral Resources

Future Trends and Assumptions

The major use of salable minerals (primarily sand, gravel, crushed rock, and decorative stone) would continue to be in support of the State and county highway and road system, BLM roads, and, to a lesser extent, for private purposes. Decorative stone sales to individuals are expected to increase. It is anticipated that the need for rock and sand and gravel will increase for maintenance and construction of county and State roads and highways due to the continued urbanization of northern Idaho.

Existing quarries and pits on private and State lands for obtaining sand, gravel, and rock is currently satisfying the markets, however, new site development on planning area lands is not precluded in this plan. Decorative stone sales could be made anywhere throughout the planning area where not precluded by law or policy.

The development and reclamation of mineral material sites would be subject to the regulations found in 43 CFR 3600.

Rock Quarry, Sand & Gravel Pit Development

Developed material sites typically disturb approximately 15 to 20 acres of land each. This acreage is necessary for the mine itself, rock crushing operations, truck turn-around areas, access trails for bulldozers and drills, overburden stockpile sites, and aggregate stockpile areas. For access to a new quarry site, approximately 0.5 acre of land would be disturbed by new road construction.

Currently there is one approved sand and gravel pit in the planning area, with anticipated production of 300,000 cubic yards and 14.5 acres of surface disturbance. It is expected that this site would be utilized intermittently throughout the planning period, and that 1 to 3 new sites of similar size would be opened up. Any existing pit expansion that causes surface disturbance beyond previously inventoried limits, or the development of any new site, would require resource inventories, site-specific NEPA compliance, and development and reclamation plans.

After all useable material is removed, reclamation work would proceed according to an approved interdisciplinary plan. Upon depletion, reclamation work would be conducted on the material sites as well as on all unneeded access roads and trails. Oversize rock would be put back into the quarries or pits, and, where possible, cut-slopes would be graded to conform with the existing topography. Stockpiled topsoil would be spread over side-slopes and floors, and seeded as directed by BLM. Access roads and trails would be graded for proper drainage, scarified, and seeded.

Decorative Stone

It is anticipated that the Coeur d'Alene office would receive 1 to 3 sale requests per year for decorative stone. In most cases, existing roads would provide access to areas where the stone is scattered on the surface. In these areas, the rock would be hand-picked and loaded directly onto pick-ups or flatbed trucks, or onto pallets and then loaded onto trucks. There could be both on and off-road vehicle travel. This type of activity typically results in negligible surface disturbance. There is a possibility that temporary road or trail construction could be necessary to gain access in some areas. Prior to designating an area as a decorative rock gathering area, and prior to any road or trail construction, appropriate inventories and NEPA compliance would be conducted to prevent unnecessary and undue degradation. Reclamation plans would be developed for any designated collecting areas and their access roads and trails.

Locatable Mineral Resources

Future Trends and Assumptions

The major commodities of interest would continue to be the precious metals gold and silver. This is based on north Idaho's mining history and the favorable geology for mineral occurrences. The other possible commodity of interest could be an uncommon variety of building stone; however, none have been identified in the planning area. Placer gold mining in the Murray area and development of underground lode deposits in the Silver Valley will likely be the main form of locatable mineral resource development. Reclamation science would continue to advance due to experience and research. More detailed design effort would be placed on the reclamation of mined lands in the future. This would result in an overall increase in reclamation costs but those costs would pay dividends in the future with increased reclamation success.

The economics of mining in the planning area would be driven by the relationship between production costs and the market price of the commodity. While production costs can be controlled or anticipated through management and technology, the price of mineral commodities could vary widely from year to year. The overall profitability of an operation, and hence the level of activity at the prospecting, exploration, and mining phases, for development of ore bodies would be closely related to the price of the mineral commodity.

No chemical heap-leaching operations are forecasted during the plan period. If such an operation is proposed during the life of the plan, it would be subjected to environmental review under a plan of operations pursuant to regulations found in 43 CFR 3809.

Casual Use, Notices, Plans of Operations, Use and Occupancy

There are three levels of use defined by the 43 CFR 3809 regulations; casual, notice, and plan of operations. Generally, casual use means activities resulting in negligible, if any, disturbance of public lands or resources. Mechanized earth-moving equipment or truck-mounted drills are not allowed under casual use. Notice-level operations involve surface-disturbing exploration operations of 5 acres or less. Casual use and notice-level operations do not involve Federal actions that require compliance with NEPA. A plan of operations is required for all mining activity that is not casual use, regardless of the number of acres disturbed. A plan is also required for all exploration activities that disturb over 5 acres, bulk sampling which will remove 1,000 tons or more of presumed ore for testing, or for any surface-disturbing operations greater than casual use in certain Special Management Area's and lands/waters that contain federally-proposed or listed threatened or endangered species or their proposed or designated critical habitat. The approval of plans of operations is a Federal action that requires NEPA compliance. Mining claim occupancy associated with notice- or plan-level operations, also requires compliance with NEPA.

Details of plan of operations filing and processing requirements can be found in 43 CFR 3809.400. Generally, plans must include a detailed description of all operations, including a map showing all areas to be disturbed by mining, processing, and access, all equipment that would be used, periods of use, and any necessary buildings or structures. A detailed reclamation plan to meet the standards found in 43 CFR 3809.420, and a monitoring plan to monitor the effect of operations are also required. An interim management plan showing how the project area would be managed during periods of temporary closure to prevent unnecessary and undue degradation must also be submitted. The operator also must submit a reclamation cost estimate. The BLM may require operational and baseline environmental information, and any other information, needed to ensure that operations will not cause unnecessary and undue degradation.

When a plan of operations is received, BLM would review it to make sure that it is complete. Where necessary, the BLM would consult with the State to ensure operations would be consistent with State requirements. In addition, the BLM would conduct any consultation required under the "National Historic Preservation Act" or "Endangered Species Act." On-site visits would be scheduled when necessary. BLM could require changes to the plan of operations to ensure that the performance standards found in 43 CFR 3809.420 would be met, and that no unnecessary or undue degradation of lands or resources would occur. In addition, site specific mitigating measures would be imposed when necessary. A financial guarantee covering the estimated cost of reclamation, as if BLM were to contract with a third-party, would have to be provided before operations could begin. The financial guarantee would have to be sufficient not only to cover costs of reclamation, but also costs associated with interim stabilization and compliance with Federal, state, and local environmental requirements while third-party contracts would be developed and executed.

BLM approval is necessary to occupy public land for more than 14 calendar days in any 90-day period within a 25-mile radius of the initially occupied site. Details for the submittal and approval of use and occupancy are contained in 43 CFR 3710. As defined in these regulations, occupancy means full or part-time residence on the public lands. It also means activities that involve residence; the construction, presence, or maintenance of temporary or permanent structures that may be used for such purposes; or the use of a watchman or caretaker for the purpose of monitoring activities. Residence or structures include, but are not limited to, tents, motorhomes, trailers, campers, cabins, houses, buildings, and storage of equipment or supplies. Also included are barriers to access, fences, gates, and signs intended to restrict public access.

Permanent structure means a structure fixed to the ground by any of the various types of foundations, slabs, piers, or poles, or other means allowed by building codes. The term also includes a structure placed on the ground that lacks foundations, slabs, piers, or poles, and that can only be moved through disassembly into its component parts or by techniques commonly used in house moving. The term does not apply to tents or lean-tos.

The disposal of sewage and gray-water would be subject to the rules and regulations of IDEQ. The disposal of garbage and other debris would be subject to all appropriate local, state, and Federal rules and regulations. Likewise, the drilling of any water wells would be subject to all Idaho Department of Water Resources requirements. Permanent structures would be subject to all state and county permitting. Copies of all required local and state approvals and permits would be filed with the BLM prior to allowing any occupancy.

Background on the Development of a Locatable Minerals Mine

The development of a mine from exploration to production can be divided into four stages. Each stage requires the application of more discriminating (and more expensive) techniques over a successively smaller land area to identify, develop, and produce an economic mineral deposit. A full sequence of developing a mineral project involves reconnaissance, prospecting, exploration, and mine development.

Reconnaissance: Reconnaissance-level activity is the first stage in exploring for a mineral deposit. This activity involves initial literature search of an area of interest, using available references such as publications, reports, maps, aerial photos, etc. The area of study can vary from hundreds to thousands of square miles. Activity that would normally take place includes large scale mapping, regional geochemical and geophysical studies, and remote sensing with aerial photography or satellite imagery. These studies are usually undertaken by academic or government entities, or major corporations.

The type of surface-disturbing activity associated with reconnaissance-level mineral inventory is usually no more than occasional stream sediment, or soil and rock, sampling. Minor off-road vehicle use could be required.

Prospecting: The prospecting area of interest is identified based on the information gathered during reconnaissance. This area could range from a single square mile to an entire mountain range of several hundred square miles. Activity that would take place in an effort to locate a mineral prospect includes more detailed mapping, sampling, geochemical and geophysical study programs. Also, this is the time when property acquisition efforts usually begin and most mining claims are located in order to secure ground while trying to make a mineral discovery. Prospecting on an annual basis is considered a minimum requirement, under the mining laws, to secure a claim.

Types of surface disturbing activity associated with prospecting would involve more intense soil and rock chip sampling using mostly hand tools, frequent off-road vehicle use, and placement and maintenance of mining claim monuments. This activity is normally considered "casual use" (43 CFR 3809.5) and does not require BLM notification or approval.

Exploration: Upon location of a sufficiently anomalous mineral occurrence, or favorable occurrence indicator, a mineral prospect is established and is subjected to more intense evaluation through exploration techniques. Activities that take place during exploration include those utilized during prospecting but at a more intense level in a smaller area. In addition, activities such as road building, trenching, and drilling are conducted. In later stages of exploration, an exploratory adit or shaft may be driven. If the prospect already has underground workings these may be sampled, drilled, or extended. Exploration activities utilize mechanized earth-moving equipment, drill rigs, etc., and may involve the use of explosives.

Typical exploration projects in the planning area could include: in-stream dredging with portable suction dredges, exploratory drilling which could include construction of new roads, use of explosives to sample rock outcroppings, and excavation of test pits. If the exploration project disturbs 5 acres or less, it is conducted under a "Notice" (43 CFR 3809.301) which requires the operator to notify BLM 15 days before beginning the activity. If the project disturbs more than 5 acres, it is conducted under a "Plan of Operations" (43 CFR 3809.401) and requires NEPA compliance before approval.

Mine Development: If exploration results show that an economically viable mineral deposit is present, activity would intensify to obtain detailed knowledge regarding reserves, possible mining methods, and mineral processing requirements. This would involve applying all the previously utilized exploration tools in a more intense effort. Once enough information is acquired, a feasibility study would be made to decide whether to proceed with mine development and what mining and ore processing methods would be utilized.

Once the decision to develop the property is made, the mine permitting process begins. Upon approval, work begins on development of the mine infrastructure. This includes construction of the mill, offices, and laboratory; driving of development workings if the property is to be underground mined, or pre-stripping if it is to be open pit mined; and building of access roads or haulage routes, and placement of utility services. During this time additional refinement of ore reserves is made.

Once enough facilities are in place, actual mine production begins. Concurrent with production there often are "satellite" exploration efforts to expand the mine's reserve base and extend the project life. Reclamation of the property is conducted concurrently with, or upon completion of, the mining operation. Often sub-economic resources remain unmined and the property is dormant, waiting for changes in commodity price or production technology that would make these resources economic.

Activities that occur on these lands include: actual mining, ore processing, tailings disposal, waste rock placement, solution processing, metal refining, and placement of support facilities such as repair shops, labs, and offices. Such activities involve the use of heavy earthmoving equipment and explosives for mining and materials handling, exploration equipment for refinement of the ore reserve base, hazardous or dangerous reagents for processing requirements, and general construction activities.

The size of mines varies greatly and not all mines would require all the previously mentioned facilities and equipment. Acreage involved can range from less than 5 acres to several hundred. Most mining operations in the planning area are under 5 acres. Any mining that involves greater than casual use, regardless of the number of acres, requires the submittal of a plan of operations, and appropriate NEPA analysis, under 43 CFR 3809.401 and .411.

Gold/Silver

Based on the mineral exploration over the past twenty years, it is anticipated that 2 to 3 notices per year would be submitted over the life of this plan. These notices could be located anywhere, but likely areas include BLM lands in the Silver Valley and around Murray, Idaho. Each notice covers exploration activities which cause less than 5 acres of disturbance, therefore it is anticipated that on average no more than 10 acres per year will be affected. Upon completion of activities covered by each notice, which is typically within 2 years of approval, the disturbed lands will be reclaimed as outlined in the proposal. This typically requires a 2 to 3 year time period for re-establishment of an acceptable vegetative cover.

In addition to the gold exploration mentioned above, it is anticipated that up to 5 notices for in-stream suction dredging would be filed during the life of the plan. In-stream dredging is usually a one to two person operation using a floating suction dredge with a 5 to 7 horsepower engine. The dredge pulls up all the gravel in the stream down to bedrock. The gravels are passed over a sluice box and are returned to the stream without the gold. This process does not require any chemicals. Most of the dredges have an intake nozzle opening of less than 5 inches diameter. Other activities associated with dredging include temporary occupancy and minor road and trail construction. These operations would be monitored pursuant to the regulations found in 43 CFR 3809.

APPENDIX I – RECOMMENDATIONS FOR COORDINATING LAND MANAGEMENT ACTIVITIES WITH ELK HABITAT PREFERENCES

Appendix I: Recommendations for Coordinating Land Management Activities with Elk Habitat Preferences

The following information came from *The Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho* (Idaho Department of Fish and Game, 1984).

Timber Harvest Recommendations

1. Any silvicultural method that changes the vegetation so that it no longer meets the definition of cover should be confined to an area with a maximum width of 1,000 feet and should be bordered on all sides by cover not less than 800 ft. width.

2. Clearcutting is usually preferred over other types of timber harvest techniques because it provides better forage and reduces the amount of future harvest activity in the area.

3. Maintain slash depth at less than 1.5 feet in order to minimize impact on elk movements, distribution and habitat use.

4. In appropriate habitat types, broadcast burn logging slash in the fall to get maximum elk forage protection.

5. Plan timber sales so maximum duration of disturbance in any one area is two years in succession. This can be accomplished with smaller sales, or scheduling larger sales by compartment in a certain sequence through contract stipulations. This would eliminate random logging over the entire sale area.

6. Refrain from logging areas when elk would normally be using them, if feasible. For example, do not log important summer habitat during that season especially if a viable option is to log during the winter.

7. If summer logging is planned on elk summer range, provide adjacent security areas at least as large as the area being disturbed for the animals to move to during periods of timber harvest and/or road building activity. Try to provide a ridge line between the disturbed area and security area. It is preferable to have several adjacent security areas available.

Road Recommendations

8. When major elk trails are bisected by roads, crossings should be provided across cut and fill slopes so they do not exceed natural gradients. This is especially necessary when cut slopes are over 8 ft. high and/or have a greater than ¾ to 1 slope.

9. Vegetation removal along road sides should not extend any further from road edge than necessary for logging activities.

10. Slash depths adjacent to roads in cleared rights-of-ways should not exceed 1.5 feet in depth. In areas where this level of slash disposal is impractical, openings 16 feet wide thru the slash at 200 foot intervals are recommended, especially on ridges and trail crossings.

11. Maintain a minimum 300 foot buffer strip between open forest roads and openings which serve as feeding areas.

12. Roads that are to remain open should avoid saddles, meadows, riparian areas, and ridge tops as these are usually major elk use areas.

13. Design roads so they can be easily and effectively closed (either permanently or temporarily) at a low cost.

14. Install gates at onset of road building activity when the objective is to prevent human use patterns from becoming established. These gates should be closed and locked during any period of logging inactivity exceeding 24 hours.

15. Inform the public by all types of news media, including signs on gates, about reasons for and dates of road closures.

16. Replace gates with permanent barriers after logging activity where maximum elk security and habitat use is desired.

17. Revegetate the driving surface as well as cut and fill slopes on permanently closed roads.

18. Maintain buffer strips (that will qualify as hiding cover if possible) along roads left open during the normal elk use period. These buffers should be at least two sight distances wide when separating the road form an opening.

Protecting Special Habitat Components

19. Consult a wildlife biologist about the occurrence and/or importance of special habitat components on a case by case basis.

20. Maintain the value of licks and wallows by buffering from disturbance for at least two site distances.

21. Do not permit activities such as timber harvest, livestock grazing, or road building on established calving and rearing areas during the period of May 1 through July 15.

22. Protect known major elk travel routes with buffer strips on either side for at least two site distances.

APPENDIX J – WILD AND SCENIC RIVERS ELIGIBILITY AND SUITABILITY STUDY

SECTION 1
ELIGIBILITY STUDY

1.1 INTRODUCTION AND SUMMARY

The Wild and Scenic Rivers Act (WSRA) of October 2, 1968, (P.L. 90-542, as amended) directs federal agencies to consider potential Wild and Scenic River additions through their respective land use planning processes. In accordance with provisions of the Act, evaluation of potential rivers involves a sequential process to determine eligibility, tentative classification and then a recommendation on suitability for inclusion to the National Wild and Scenic Rivers System (NWSRS). BLM Manual 8351 provides process guidance. Eligibility and tentative classification determinations comprise an inventory. Subsequent suitability determinations are resource management plan outputs expressed as recommendations. Ultimate designation for inclusion to the NWSRS is a Congressional decision.

All named streams within the planning area with BLM surface ownership were screened against Wild and Scenic River eligibility criteria (Appendix A). This involved portions or all of 133 streams (Appendix B). Nearly all these streams were found to meet the free flowing eligibility criteria. Five free flowing stream segments were found to possess one or more "outstandingly remarkable" resource value and to be eligible for inclusion to the National Wild and Scenic River System. These include a segment of the Kootenai River, a segment of the Little North Fork Clearwater River and the entire length of Lost Lake Creek, Little Lost Lake Creek, and Lund Creek.

1.2 PROCESS OVERVIEW

BLM's geographic information system was used to identify and map rivers and streams with BLM surface ownership. The river and streams layer derived from the USGS (U.S. Geological Survey) National Hydrographic Data Set and the BLM surface ownership layer were combined to produce a list of 133 potentially free flowing streams to consider (Appendix B). Within their individual area(s) of expertise, staff specialists assessed these streams against WSRA eligibility criteria using available inventory information and their personal knowledge of the area (Appendix A). Process details include:

- No new resource inventories were conducted. Existing information was used.
- Stream segments previously studied for suitability were not reevaluated for eligibility. This involved one stream with BLM ownership, the St. Joe River.
- Only named streams were included on the potential rivers list. Un-named tributaries to these named streams were considered along with the named stream if BLM lands were involved.
- In accordance with BLM policy, only stream segments with predominant federal ownership were evaluated.
- In instances where BLM and National Forest lands are intermingled the total federal segment was considered.

1.2.1 Eligibility Criteria

Free Flowing

Free-flowing is defined in the WSRA as "existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway." The existence of small dams or other structures does not automatically disqualify a stream from consideration for inclusion to the NWSRS. There is no minimum flow requirement and a stream need not be boatable or floatable in order to be eligible. Congress did not require rivers to be "naturally flowing". Impoundments upstream or downstream of a river segment which regulates the flow regime through it does not disqualify it from consideration.

Outstandingly Remarkable Values

The WSRA requires a river segment to contain one or more "outstandingly remarkable" value to be eligible for inclusion to the NWSRS. Seven specific resource values are listed and a general value category identified as "other similar values" is also included. The Act does not define the terms "outstandingly remarkable" or prescribe standards for evaluating individual resource values. Agency guidance for doing so is provided in BLM Manual 8351 and is summarized below.

- **Scenic:** The landscape elements of landform, vegetation, water, color and related factors result in notable or exemplary visual features or attractions. Additional factors such as seasonal variations in vegetation, scale of cultural modifications, and length of time negative intrusions are viewed can also be considered when analyzing scenic values. Diverse scenery and visual attractions exist over a majority of the public lands, are not common to other streams and are of a quality to attract visitors from outside the area.
- **Recreational:** Recreational opportunities are unique enough to attract visitors from outside the area. Visitors would be willing to travel long distances to use the water related resources for recreational purposes. Recreation opportunities could include but are not limited to sightseeing, wildlife observation, camping. Photography, hiking, fishing, hunting and boating. Also, interpretive opportunities may be exceptional.

- **Geologic:** The stream corridor provides an example(s) of a geologic feature, process or phenomenon that is rare, unusual, or unique to the region. The feature(s) may be in an unusual stage of development, represent a "textbook" example and/or represent a unique or rare combination of geologic features (e.g., erosional, volcanic, glacial, or other geologic structure).

- **Fisheries:** Fishery values may be judged on the relative merits of either fish populations or habitat, or a combination of both.

  Populations: The stream is a top producer of resident and/or indigenous fish species either nationally or regionally. Of significance may be the presence of wild or unique stocks or populations of listed or candidate threatened and endangered species. Diversity of species is also an important consideration.

  Habitat: The stream segment contributes to exceptionally high habitat for fish species indigenous to the region. Of particular significance is habitat for federally listed or candidate threatened and endangered species.

- **Wildlife:** Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of both.

  Populations: Stream corridor lands support populations of resident or indigenous wildlife species important in the area or nationally. Of particular significance are species considered to be unique or populations of listed or candidate threatened and endangered species.

  Habitat: Stream corridor lands contribute to exceptionally high quality habitat for wildlife species important in the area or nationally, or they provide unique habitat or a critical link in habitat conditions for listed or candidate threatened and endangered species. Contiguous habitat conditions should be such that the biological needs of the species are met.

- **Cultural:** The stream corridor contains prehistoric sites that are rare, have unusual characteristics, or possess exceptional human-interest values. Sites may have national or regional importance for interpreting prehistory, be rare, or represent an area where a culture or cultural period was first identified and described. Sites may have been used by two or more cultural groups or may have been used for rare or sacred purposes.

- **Historical:** The stream corridor contains sites or features associated with a significant event, an important person, or a cultural activity of the past that was rare or unusual in the area. Sites or features listed or eligible for inclusion in the National Register of Historic Places may be of particular significance.

- **Other Similar Values:** Specific evaluation guidelines have not been developed for the "other similar values" category. Additional values including but not limited to hydrologic, ecologic diversity, paleontologic, botanic, and scientific study opportunities should be considered in a manner consistent with and similar to the forgoing resource evaluations.

1.2.2 Tentative Classification

A second step of the inventory process is to assign a tentative classification to eligible river segments (Appendices C and D). The WSRA specifies three classification categories: wild, scenic, and recreational. Classification is based on the level or degree of development of the river and adjacent lands (Appendix C). Each category is specifically defined in the Act as follows:

- **Wild River Areas:** "Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America".
- **Scenic River Areas:** "Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."
- **Recreational River Areas:** "Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

1.3 ELIGIBILITY REVIEW RESULTS

1.3.1 Kootenai River

Eligible Segment: Montana state line downstream to and including Hideaway Islands

Total Length – 14 miles

BLM Administered Frontage – 5.73 miles

Tentative Classification: Recreational

Outstandingly Remarkable Value(s): Fisheries, Wildlife, Botanic

This stream segment starts at the border of Idaho and Montana and extends downstream to the lower end of Hideaway Islands. Hideaway Islands are designated a Research Natural Area. The shoreline ownership is intermingled BLM, National Forest, state and private lands. It flows through a defined canyon without road or trail access. A Burlington Northern rail line follows the south shoreline for its entire length so this segment best meets the recreational river classification category. Below this eligible segment the river continues for more than 50 miles before entering Canada. This downstream segment may also be eligible but contains no BLM lands to consider. An upstream segment in Montana may also be eligible but is outside the planning area and contains no BLM land to consider. The Forest Service, through their forest plan revision, will determine eligibility of the Montana segment of the River.

The Kootenai River provides spawning and rearing habitat for the endangered white sturgeon, threatened bull trout, and BLM sensitive burbot and westslope cutthroat trout. The Bonneville Power Administration is proposing to add nutrients to this segment of the river to (1) replace nutrients trapped by Libby Dam and (2) enhance fish production in the river. The associated riparian habitat on BLM public lands are either Proper Functioning Condition or Functional At-Risk.

Bald eagles nest along the Kootenai River from the Montana state line downstream to the Hideaway Islands. The Moyie nest was first discovered in 1990 and produced 7 young eagles in 15 years (0.47 per year). The Katka nest was first discovered in 1996 and produced 4 young eagles in 9 years (0.44 per year). The Crossport nest was first discovered in 1995 and produced 11 young eagles in 10 years (1.1 per year).

Hideaway Islands were designated as an RNA/ACEC for unique botanical values. The islands contain a good example of a black cottonwood/red-osier dogwood riparian plant community in various stages of ecological succession. Three species of cottonwood are found on the islands: black cottonwood, narrowleaf cottonwood, and eastern cottonwood. Eastern cottonwood is found primarily east of the Mississippi River, with a disjunct distribution in the western U.S. This species is uncommon in Idaho. The Idaho Conservation Data Center (CDC) ranks the black cottonwood/red-osier dogwood community type as "S1" in Idaho. An S1 rank is assigned to plant species or communities that are critically imperiled statewide (typically 5 or fewer occurrences or less than 5 percent of native range currently occupied by high quality examples of type) or especially vulnerable to extirpation from the state. Hideaway Islands is managed by BLM in a non-destructive and non-manipulative manner to preserve the existing plant communities in an unmodified condition for the primary purpose of research and education.

1.3.2 Little North Fork Clearwater River

Eligible Segment: Source at Fish Lake downstream to National Forest boundary

Total Length – 3.61 miles

BLM Administered Length – 2.56 miles

Tentative Classification: Wild, Recreational

Outstandingly Remarkable Value(s): Fisheries

This stream segment starts at Fish Lake within the Grandmother Mountain Wilderness Study Area (WSA). Outside the WSA it flows east across a Forest Service section and then again onto BLM land. The stream segment considered here terminates at the section line common to sections 1 and 12, T. 43 N., R. 4 E., B.M. Beyond this point the stream continues but is located all on National Forest land. A trail starts at Forest Road #1925 and parallels the stream providing access to Fish Lake. The trail is a two track primitive road that is maintained to a trail width. This stream segment accessible by trail best meets the wild river classification category. The remaining downstream segment is crossed and followed by forest roads and best meets the recreational river classification category. The entire stream was identified by the Forest Service as eligible in the 1987 Idaho Panhandle National Forests Forest Plan.

The Little North Fork of the Clearwater River provides spawning and rearing habitat for the threatened bull trout and BLM sensitive westslope cutthroat trout. Bull trout redds have been counted on this creek since 1996, and have averaged approximately 0.48 redds per stream mile. The associated riparian habitat on BLM public lands is in Proper Functioning Condition.

1.3.3 Lost Lake Creek

Eligible Segment: Entire stream from Lost Lake to Little North Fork Clearwater R.

Total Length – 3.43 miles

BLM Administered Length – 1.06 miles

Tentative Classification: Wild, Scenic

Outstandingly Remarkable Value: Fisheries

An intermingled land ownership pattern exists along this stream. It begins at Lost Lake on National Forest land and then crosses BLM land within the Grandmother Mountain WSA. It then alternates back and forth from National Forest to private land lands twice before terminating on BLM land where it intersects the Little North Fork Clearwater River. A foot trail starts at Forest Road #1925 and follows the stream accessing Lost Lake. It starts as a two track primitive road and then narrows to a single-track trail after entering the WSA. This stream segment accessible by trail best meets the wild river classification category. The remainder downstream from Forest Road #1925 best meets the scenic river classification category.

Lost Lake Creek provides spawning and rearing habitat for the threatened bull trout and BLM sensitive westslope cutthroat trout. One bull trout redd was counted in 2000 and again in 2004. The associated riparian habitat on BLM public lands is in Proper Functioning Condition.

1.3.4 Little Lost Lake Creek

Eligible Segment: Entire stream from Little Lost Lake to Little North Fork Clearwater R.

Total Length – 3.09 miles

BLM Administered Length – 2.13 miles

Tentative Classification: Wild

Outstandingly Remarkable Value(s): Fisheries

All BLM lands on this stream are within the Grandmother Mountain WSA. The lower portion of the stream crosses National Forest land before terminating at its confluence with the Little North Fork Clearwater River. A primitive road on National forest land is shown on the USGS 7.5-minute Widow Mountain quadrangle but does not exist. A foot trail provides access to Little Lost Lake. The trail follows a ridge parallel to the stream and is about ¼ mile off the stream for most of its length. The trail starts as a two track primitive road and then narrows to a single-track trail after entering the WSA.

Little Lost Lake Creek provides spawning and rearing habitat for the threatened bull trout and BLM sensitive westslope cutthroat trout. Bull trout redds have been counted on this creek since 1996, and has averaged approximately 0.60 redds per stream mile. The associated riparian habitat on BLM public lands is in Proper Functioning Condition.

Members of the experimental, nonessential population of gray wolf inhabit the greater area that is partially drained by Lost Lake Creek. This population is treated as a proposed species for federal listing under the ESA. This area also provides habitat for the threatened Canada lynx.

1.3.5 Lund Creek

Eligible Segment: Entire stream from its source to Little North Fork Clearwater River

Total Length – 3.88 miles

BLM Administered Length: 3.09 miles

Tentative Classification: Wild

Outstandingly Remarkable Value(s): Fisheries, Botanic

All BLM lands on this stream are within the Grandmother Mountain Wilderness Study Area. Approximately the upper half of the stream is within the Lund Creek Research Natural Area. The entire drainage is largely pristine. The lower portion of the stream crosses National Forest lands before terminating at its confluence with the Little North Fork Clearwater River. An un-maintained primitive road used as a trail is located on National Forest land and travels a short distance up the drainage. The USGS 7.5-minute Widow Mountain quadrangle shows this primitive road as a trail and shows it extending one mile upstream onto BLM lands. This trail is overgrown, not maintained and for all practical purposes does not exist.

Lund Creek provides spawning and rearing habitat for the threatened bull trout and BLM sensitive westslope cutthroat trout. Bull trout redds have been counted on this creek since 1996, and has averaged approximately 1.22 redds per stream mile. This is due to the fact that Lund Creek has the best water temperatures on BLM public lands within the Little North Fork drainage for bull trout. The aquatic habitat is in very good ecological condition, and the associated riparian habitat on BLM public lands is in Proper Functioning Condition.

The Lund Creek RNA/ACEC was designated to protect unique natural features and ecological diversity. The area contains stands of mature mountain hemlock and subalpine plant communities dominated by subalpine fir, whitebark pine, and mountain hemlock. A number of aquatic features such as Pinchot Marsh, Little Lost Lake, and a bog, marsh, streams and waterfalls are present. Lund Creek itself and its associated riparian plant communities are rated as being in very good ecological condition. Bogs and marshes in the Grandmother Mountain area are considered subalpine peatlands, characterized by a mixture of plant species common to the mountain systems of western North America, as well as plant species more typical of boreal habitats occurring hundreds of miles north of the planning area. Although peatlands comprise a very small percentage of vegetation across the landscape they are among the most floristically diverse vegetation types. Scientists and educators are encouraged to use the area for study purposes. However, all uses must be non-destructive. No vegetative manipulation (including timber harvest) or vehicle use is permitted.

SECTION 2
SUITABILITY STUDY

2.1 INTRODUCTION

The purpose of the study phase is to determine whether eligible river segments are suitable or unsuitable for inclusion in the National System, per the criteria of the WSR Act. The suitability evaluation does not result in actual designation but only a suitability determination for designation. The BLM does not recommend any stream segments for designation into the National System, and no stream segment studied is or will be automatically designated as part of the National System. Only Congress can designate a wild and scenic river. In some instances, the Secretary of the Interior may designate a wild and scenic river when the governor of a state, under certain conditions, petitions for a river to be designated. Congress will ultimately choose the legislative language if any suitable segments are presented to them. Water protection strategies and measures to meet the purposes of the WSR Act will be the responsibility of Congress in any legislation proposed. Rivers found unsuitable will be dropped from further consideration and will be managed according to the objectives outlined in the Coeur d' Alene (CdA) Resource Management Plan (RMP). The CdA FO is currently preparing a combined RMP and Environmental Impact Statement (EIS).

During the scoping period for the RMP, two comment letters were received identifying wild and scenic rivers as an issue. Comments provided within the scoping letters pertained to BLM's need to conduct a wild and scenic river eligibility and suitability study during the RMP process. No specific river segments were identified. One of the letter authors stated that they felt that additions to the wild and scenic rivers system were warranted and appropriate but did not specifically name any segments.

Impacts that would occur from designating or not designating the eligible and suitable river segments will be analyzed in the EIS associated with the RMP. Public review and comment on suitability determinations included in the Draft RMP are considered before the BLM makes final suitability determinations.

The following eight factors, identified in BLM Manual Section 8351 (BLM 1992), are applied to each eligible river segment when completing the suitability study:

1. Characteristics that do or do not make the river a worthy addition to the National System;
2. The status of land and mineral ownership, use in the area, and associated or incompatible uses;
3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System and values that would be foreclosed or diminished if the area were not designated;
4. Federal, state, tribal, local, public, or other interest in designating or not designating the river;
5. Estimated cost of acquiring necessary lands and interests in lands and administering the area, if designated;
6. Ability of the agency to manage and protect the river area or segment as a wild and scenic river or other means to protect the identified values other than wild and scenic river designation;
7. Historical or existing rights that could be adversely affected with designation; and
8. Other.

2.2 INTERIM MANAGEMENT OF SUITABLE SEGMENTS

BLM guidance requires that interim management be developed and followed to protect the free-flowing nature, outstandingly remarkable values, and recommended classification of suitable segments until congressional action regarding designation is taken. Following BLM review of suitability determinations, interim management measures will be developed for each suitable segment.

2.3 SUITABILITY DETERMINATIONS FOR THE COEUR D'ALENE FIELD OFFICE

This section contains a discussion of eight suitability factors in relationship to each of the five segments determined to be eligible in Section 1 (see Map #71 in RMP Volume III). These factors were described above in Section 2.1.

Segment 1: Kootenai River

1. Characteristics that do or do not make the river a worthy addition to the National System:

   The outstandingly remarkable values that qualify this river segment as eligible for inclusion in the NWSRS are fisheries, wildlife, and botanical, as described in Section 1.3.1. Within the BLM-managed portions of this segment, there is high quality spawning and/or rearing habitat for Kootenai sturgeon, bull trout, burbot, and westslope cutthroat trout. Bald eagles nest and forage along the Kootenai River from the Montana state line downstream to Bonner's Ferry. Botanic ORVs are related to the unique botanical values located within the Hideaway Islands RNA/ACEC.

A Burlington Northern rail line follows the south shoreline for the entire length of this segment.

River flow through the BLM-managed sections is regulated by Libby Dam operations in Montana. Libby Dam is operated by the Bonneville Power Administration. Current operations provide sufficient water for fisheries and wildlife-related ORVs. However, some deterioration to sturgeon spawning habitat has occurred, requiring spawning mats to be placed in the river in certain areas to provide adequate spawning substrate. In addition, the Bonneville Power Administration is proposing to add nutrients to this segment of the river to replace nutrients trapped by the dam and to enhance fish production.

Water quality concerns have been identified by the EPA for the lower Kootenai River. In 2002 an assessment of this segment of the Kootenai River was found to exceed temperature criteria, and submitted to EPA as category 3 waters for Idaho's proposed 2002 integrated report. Category 3 in an integrated report is the same as the old 303(d) listed water, waters for which a TMDL needs to be developed. EPA hasn't taken any action at this time. The EPA is expected to include the 2002 findings when it evaluates the 2004 integrated report. None of the mainstem Kootenai River segments have gone through the whole process (public, regulatory) to be officially "listed" by the EPA (pers. Com. Steed 2005). This segment is listed as non-supporting for cold water aquatic species due to elevated water temperatures. It is believed that a lack of adequate riparian vegetation and associated shade is a major contributor to the elevated water temperatures. The riparian habitat on portions of this segment that occur on public lands managed by BLM has been identified as either in Proper Functioning Condition or Functional At-Risk.

2. The status of land and mineral ownership, use in the area, and associated or incompatible uses:

   There is a combination of federal, state, and private land along this segment. Federal land is managed either by BLM or USFS. The BLM manages land adjacent to 5.73 miles of the 14-mile segment being studied; this represents 41 percent of the segment length. However, the BLM does not necessarily manage lands on both banks of the river within the 5.73 miles (See Map #71 in RMP Volume III). An evaluation of land status and ownership in the study corridor, defined as within one-quarter mile on either side of the river, was conducted. Within the study corridor, not including islands, BLM manages 494 acres (13.1%), USFS manages 1,147 acres (30.3%) and the State of Idaho manages 150 acres (4%). The remaining 1,987 acres (52.6%) of land is privately held.

Federal lands within this segment are encumbered by two withdrawals: 1) a 1910 Executive Order withdrawing the parcels as a powersite reserve, and 2) a 1944 Secretarial Order withdrawal for a powersite classification.

In addition, there are sand and gravel operations adjacent to public land along the river.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System, and values that would be foreclosed or diminished if the area were not designated:

   The Two Tail timber harvest lease is located on BLM-managed lands within the river corridor in this segment. This timber harvest operates in accordance with the stipulations described in INFISH, resulting in a buffer zone designed to protect river-related values. INFISH stipulations include incorporating no harvest/activity buffers into any future timber sales within the riparian areas. If the segment were designated in the NWSRS, the buffer zone would include all lands within the designated corridor, currently defined as within 1/4-mile of the river. This would not be a significant change from current management.

   Grazing occurs on adjacent private lands and occasionally results in unauthorized grazing on BLM lands. Designation could result in stricter enforcement of grazing restrictions on BLM lands.

   WSR designation would complement the existing protection given to the rare riparian plant communities growing in the Hideaway Islands RNA/ACEC. This RNA/ACEC is managed in a nondestructive and non-manipulative manner.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river:

   At this time, no specific federal, state, tribal, local, or public entity has expressed interest in this segment of the Kootenai River regarding wild and scenic designation. BLM anticipates comments on wild and scenic river designation from interested parties to be received during the Draft RMP comment period.

   The State of Idaho has jurisdiction of the streambed and consequently has a vested interest in designating or not designating this segment.

Licensed fishing guides operate in this segment of the Kootenai River. Fishing guides are regulated by Idaho Outfitters and Guides Licensing Board.

The Kootenai Tribe, Idaho Fish and Game, the county, local fishing clubs, outfitters, private landowners, and authorized users also have an interest.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated:

   Scenic and or conservation easements on private lands would be required to effectively manage for the protection of fish and wildlife ORVs. No specific parcels have been identified as being required. Easements and land would only be acquired on a willing seller basis. The estimated cost of easements in this area is $10,000 an acre.

6. Ability of the agency to manage and protect the river area or segment as a wild and scenic river, or other means to protect the identified values other than Wild and Scenic River designation:

   Managing BLM-administered lands for the protection of ORVs would be relatively simple. BLM would continue to implement INFISH standards and guidelines as a means of protecting riparian conservation areas. Additionally, because many of the ORVs are linked to federally listed species, the BLM would continue to ensure compliance with the ESA for the protection of these species and their habitats. ESA compliance and management resulting from WSR designation would be compatible.

   Managing for the protection of ORVs would need to be coordinated with the USFS, which manages 30.3 percent of the riparian corridor within one-quarter mile of the river. Land use on USFS lands are also constrained by the ESA to protect listed species.

   The Hideaway Islands RNA/ACEC is near the downstream end of the WSR-eligible river segment. An ACEC nomination is being considered that would involve all of the purple lands highlighted for the WSR review, except for the small triangle of land in the Two Tail vicinity (western side of map).

   Without acquiring easements, potential uses on private lands adjacent to public lands could adversely affect ORVs within public land agency jurisdiction. Increased sediment from upstream and regulated water flows could affect the amount and quality of fisheries habitats within the portions of river flowing through public land.

   There are no local or state zoning or land use regulations that would prevent development along the river. Consequently, potential development on private parcels could be incompatible with WSR designation.

7. Historical or existing rights that could be adversely affected with designation:

   The Kootenai Tribe may have historical rights for fishing, hunting, and gathering. The Kootenai River may also hold spiritual significance to the tribe. The tribe's right to alter the stream through installation of dams or by channelizing is unknown.

8. Other:

   No other major issues or concerns regarding suitability of this segment have been identified in the land use planning process.

Segment 2: Little North Fork of Clearwater River

1. Characteristics that do or do not make the river a worthy addition to the National System:

   This segment contains outstandingly remarkable fisheries values. These values are dependent upon the high quality spawning and rearing habitat for bull trout and westslope cutthroat trout.

   The segment from USFS road #1925 upstream to Fish Lake is accessible by trail. The trail is composed of an old two track road that is currently maintained to a trail width.

   The segment from USFS road #1925 to the downstream end of the segment is accessible by a USFS road that crosses and parallels the segment.

   The segment has no water quality issues.

2. The status of land and mineral ownership, use in the area, and associated or incompatible uses:

   The BLM manages lands along 2.56 miles (71%) of this 3.61-mile segment. The remaining 1.05-mile-long section (29%) is managed by the USFS (See Map #71 in RMP Volume III). Within the study corridor (defined as ¼-mile on each side of the river) BLM manages 67 percent (858 acres) of the land, USFS manages 32 percent (410 acres) and private landowners control less than 1% (9 acres). The private land holdings are not adjacent to the river and would likely be excluded from the designated corridor. The entire Little North Fork Clearwater, including this portion, was identified by the USFS as eligible for WSR consideration (USFS 1987 Idaho Panhandle National Forests Forest Plan). The USFS has not completed a suitability study for this segment.

   A query of BLM's LR2000 database revealed no active mining claims on the identified BLM lands or adjacent USFS lands. A review of the Mines and Prospects of the Wallace Quadrangle, Idaho indicated no historical activity on the identified

BLM lands. There have been gold, silver, copper, lead, mica, feldspar, and sand and gravel prospects on surrounding lands, but none are within one mile of the BLM lands. This information agrees with the mineral potential classification assigned to this region in the Mineral Occurrence and Development Potential Report, Coeur d'Alene Field Office Planning Area (BLM 2005). Current information suggests it is a hardrock area with low potential for all minerals.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System and values that would be foreclosed or diminished if the area were not designated:

   Much of this segment is within the Grandmother Mountain Wilderness Study area and is managed according to interim wilderness management guidelines. Management measures that would result from WSR designation would likely be similar to the interim management being implemented.

   Designation of this segment would result in implementing riparian no harvest/activity buffers for future timber sales to protect the corridor. However, this would not be a significant change from current ESA requirements for the protection of bull trout in the segment. Timber harvests have occurred on lands adjacent to this segment, and the segment is currently part of the Breezy Saddle timber sale.

   If the segment is designated harvest stipulations for the Breezy Saddle timber sale would include a no harvest/activity buffer equal to the designated corridor, which is proposed for ¼-mile on each side of the river. Consequently, designation of this segment may increase the buffer zone resulting in additional protection from potential sedimentation associated with timber harvests.

   Typical recreation uses in this section include fishing, primitive camping, big game hunting, and trail activities. The trail that parallels the segment is currently open to ATVs and motorcycles and requires occasional maintenance. Forest roads are open to all classes of vehicles. If trail use results in adverse impacts to fish habitat, closure to motorized use may be required.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river:

   At this time, no specific federal, state, tribal, local, or public entity, with the exception of the USFS, has expressed interest in this segment of the Little North Fork Clearwater River regarding wild and scenic designation. BLM anticipates comments on wild and scenic river designation from interested parties to be received during the Draft RMP comment period.

   The USFS identified the entire river as eligible in the 1987 Idaho Panhandle National Forests Forest Plan.

The Coeur d'Alene tribe would potentially have an interest in whether this segment becomes designated.

Idaho Department of Fish and Game, Shoshone County, local fishing clubs and outfitters, nearby private landowners, and authorized users potentially have an interest in whether this segment becomes designated.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated:

   All lands being considered for designation are federally managed; there would be no need to acquire additional properties. However, coordination with USFS would be necessary to ensure protection of the river values.

6. Ability of the agency to manage and protect the river area or segment as a Wild and Scenic River, or other means to protect the identified values other than Wild and Scenic River designation:

   A portion of the segment is included in the Grandmother Mountain Wilderness Study Area (WSA). Resource values, including fisheries values, are protected in this area under interim management measures. Designation as a wilderness area or removal of WSA status is at the discretion of Congress. Consequently, resource protection afforded by interim management is only temporary.

   The ESA provides additional protection of fish and riparian habitats.

   Riparian Conservation Areas will be defined based on INFISH standards and guides. Additionally, the area is being considered for ACEC designation, which could result in protective management measures.

   Effective protection of fisheries ORVs would require the cooperation of the USFS on adjacent USFS-managed lands.

7. Historical or existing rights that could be adversely affected with designation:

   The Coeur d'Alene Tribe may have historical rights for fishing, hunting, and gathering. The Little North Fork of the Clearwater River may also hold spiritual significance to the tribe. The tribe's right to alter the stream by installing dams or by channelizing is unknown.

8. Other:

   No other major issues or concerns regarding suitability of this segment have been identified in the land use planning process.

Segment 3: Lost Lake Creek

1. Characteristics that do or do not make the river a worthy addition to the National System:

   This segment contains outstandingly remarkable fisheries values. The values are dependent on the high quality spawning and rearing habitat for bull trout and westslope cutthroat trout.

   A foot trail starts at Forest Road #1925 and follows the stream to Lost Lake. The trail starts as a two-track primitive road and narrows to a single-track trail after entering the Grandmother Mountain WSA.

   The segment has no water quality issues.

2. The status of land and mineral ownership use in the area and associated or incompatible uses:

   Land status along this segment is intermingled between BLM, USFS, and private landowners. The segment length is 3.43 miles, with BLM managing lands along 1.06 miles (31%) (See Map #71 in RMP Volume III). An evaluation of land status and ownership within one-quarter mile on either side of the river was conducted; this is referred to as the one-half mile study corridor. Within the study corridor BLM manages 443 acres (35%), USFS manages 599 acres (47%), and 225 acres (18%) are privately held.

   A query of BLM's LR2000 database (accessed January 2005) revealed no active mining claims on the identified BLM lands or adjacent USFS lands. A review of the Mines and Prospects of the Wallace Quadrangle, Idaho indicated no historical activity on the identified BLM lands. There have been gold, silver, copper, lead, mica, feldspar, and sand and gravel prospects on surrounding lands, but none are within one mile of the BLM lands. This information agrees with the mineral potential classification assigned to this region in the Mineral Occurrence and Development Potential Report, Coeur d'Alene Field Office Planning Area (BLM 2005). Current information suggests it is a hardrock area with low potential for all minerals.

   Public land status in this area is unencumbered, there are no existing leases, ROWs, utility corridors or withdrawals associated with these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System and values that would be foreclosed or diminished if the area were not designated:

   Timber harvest has occurred on BLM lands adjacent to this river and could potentially occur again. If the segment were designated as a WSR, future timber harvests and construction of roads would not be permitted within the designated corridor. This would result in a specific riparian no harvest/activity buffer zone incorporated into any future timber sales in this area.

The trail that runs alongside the segment is open to ATVs and motorcycles. Trail maintenance activities occur along this segment. Management of these activities must comply with the ESA to ensure protection of bull trout habitat. Designating this segment is not likely to change trail use and maintenance activities. Designation could be considered complimentary with WSA interim management.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river:

   At this time, no specific federal, state, tribal, local, or public entity has expressed interest in this segment of the Lost Lake Creek regarding wild and scenic designation. BLM anticipates comments on wild and scenic river designation from interested parties to be received during the Draft RMP comment period.

   Several different entities would be interested in whether this segment is designated or not designated for inclusion in the National Wild and Scenic Rivers System. The primary entities would be the USFS and the private landowners along this segment. The USFS manages lands along Lost Lake and along two other sections downstream before reaching BLM lands at the confluence with the Little North Fork Clearwater River. All the private lands along this segment are controlled by a timber company and are subject to logging. Management measures resulting from designation would be limited to federal lands and would not affect the private parcels. However, BLM would pursue acquisitions and/or conservation easements on a willing seller basis along the river on private parcels.

   Other entities potentially interested include the Coeur d'Alene Tribe, Idaho Fish and Game, Shoshone County, local fishing clubs, outfitters, and other authorized users.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated:

   Fee acquisition of the private parcels along this segment would be desirable. BLM would pursue acquisition on a willing seller basis only. Land costs are estimated at $3,000 per acre.

6. Ability of the agency to manage and protect the river area or segment as a Wild and Scenic River or other means to protect the identified values, other than Wild and Scenic River designation:

   Protection of fisheries ORVs on BLM lands would likely be accomplished through BLM's implementation of the INFISH standards and guidelines for the protection of Riparian Habitat Conservation Areas (RHCA). RHCAs are portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines.

For "fish-bearing streams," Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the greater of:

- the top of the inner gorge or to the outer edges of the 100-year floodplain, or
- to the outer edges of riparian vegetation, or
- to a distance equal to the height of the two site potential trees or 300 feet slope distance (600 feet including both sides of the stream channel),.

Depending on the topography, the RHCA could be smaller or larger than the wild and scenic river corridor, if designated.

Cooperative management with USFS in adjacent parcels would be required to ensure protection of fisheries ORVs.

An ACEC nomination is being considered for this area and could provide necessary protection depending on management measures developed.

BLM and USFS also manage this riparian corridor according to the requirements of the ESA for the protection of bull trout and bull trout habitat.

A portion of this area is within the Grandmother Mountain WSA. Interim management affords limited protection of fisheries ORVs in the areas within the WSA. These management measures, although effective, are only interim and could be removed by congressional action.

Consequently, potential development on private parcels could be incompatible with WSR designation.

7. Historical or existing rights that could be adversely affected with designation:

   The Coeur d'Alene Tribe may have historical rights for fishing, hunting, and gathering. Lost Lake Creek may also hold spiritual significance to the tribe. The right of the Coeur d'Alene Tribe to alter the stream by installing dams or by channelizing is unknown.

8. Other:

   No other major issues or concerns regarding suitability of this segment have been identified in the land use planning process.

Segment 4: Little Lost Lake Creek

1. Characteristics that do or do not make the river a worthy addition to the National System:

   This segment contains outstandingly remarkable fisheries values related to its spawning and rearing habitat for bull trout and westslope cutthroat trout.

A foot trail parallels the segment providing access to Little Lost Lake near the headwaters of Little Lost Lake Creek. The trail is located about one-quarter mile away from the stream. The trail is a two-track primitive road on the USFS downstream portion and narrows to a single-track trail after entering BLM land in the Grandmother Mountain WSA.

This area provides habitat for the federally listed threatened Canada lynx and is occupied by members of an experimental nonessential population of gray wolf.

The segment has no water quality issues.

2. The status of land and mineral ownership, use in the area, and associated or incompatible uses:

   All of the land adjacent to this segment is federally managed by either BLM or USFS. BLM manages lands along 2.13 miles (69%) of the 3.09-mile-long segment. USFS manages lands along the remaining 0.96 miles (See Map #71 in RMP Volume III). Within the study corridor, BLM manages 66 percent (793 acres), USFS manages 31 percent (371 acres) and private landowners control 3 percent (42 acres). Private landholdings are located within the study corridor are not located adjacent to the river. This private parcel is controlled by a timber company and is subject to timber harvest.

   A query of BLM's LR2000 database (accessed January 2005) revealed no active mining claims on the identified BLM lands or adjacent USFS lands. A review of the Mines and Prospects of the Wallace Quadrangle, Idaho indicated no historical activity on the identified BLM lands. There have been gold, silver, copper, lead, mica, feldspar, and sand and gravel prospects on surrounding lands, but none are within 1 mile of the BLM lands. This information agrees with the mineral potential classification assigned to this region in the Mineral Occurrence and Development Potential Report, Coeur d'Alene Field Office Planning Area (BLM 2005). Current information suggests it is a hardrock area with low potential for all minerals.

   Public land status in this area is unencumbered, there are no existing leases, ROWs, utility corridors or withdrawals associated with these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System, and values that would be foreclosed or diminished if the area were not designated:

   If the segment were designated as a WSR, future timber harvests, and construction of roads would not be permitted within the designated corridor. This would result in a specific riparian no harvest/activity buffer zone incorporated into any future timber sales in this area.

The trail that runs alongside the segment is currently open to ATVs and motorcycles. Trail maintenance activities occur along this segment. Management of these activities must comply with the ESA to ensure protection of bull trout habitat. Designating this segment is not likely to change trail use and maintenance activities. Designation would be considered complimentary with WSA interim management.

Typical recreation uses in this area include fishing, primitive camping, and big game hunting. Designation would not likely affect these uses.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river:

   At this time, no specific federal, state, tribal, local, or public entity has expressed interest in this segment of the Little Lost Lake Creek regarding wild and scenic designation. BLM anticipates comments on wild and scenic river designation from interested parties to be received during the Draft RMP comment period.

   Several different entities would be interested in whether this segment is designated or not designated for inclusion in the National Wild and Scenic Rivers System. The primary entity would be the USFS. The USFS manages lands along the lower section between BLM lands and the confluence with the Little North Fork Clearwater River. Although there are no private landholdings immediately adjacent to the river, there are private lands within the watershed controlled by a timber company and subject to logging. Management measures resulting from designation would be limited to federal lands and not affect the private parcels.

   Other entities potentially interested include the Coeur d'Alene Tribe, Idaho Fish and Game, Shoshone County, local fishing clubs, outfitters, and other authorized users.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated:

   All lands along the river segment are federally managed, so no land acquisition would be required or pursued. Coordination with USFS on designation and management would be necessary to protect ORVs.

6. Ability of the agency to manage and protect the river area or segment as a Wild and Scenic River or other means to protect the identified values:

   Protection of fisheries ORVs on BLM lands would likely be accomplished through BLM's implementation of the INFISH standards and guidelines for the protection of Riparian Habitat Conservation Areas (RHCA). RHCAs are portions of watersheds where riparian dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines.

For "fish-bearing streams," Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the greater of:

- the top of the inner gorge or to the outer edges of the 100-year floodplain, or
- to the outer edges of riparian vegetation, or
- to a distance equal to the height of the two site potential trees or 300 feet slope distance (600 feet including both sides of the stream channel).

Depending on the topography, the RHCA could be smaller or larger than the wild and scenic river corridor, if designated.

Cooperative management with USFS in adjacent parcels would be required to ensure protection of fisheries ORVs.

An ACEC nomination is being considered for this area and could provide necessary protection depending on management measures developed.

BLM and USFS also manage this riparian corridor according to the requirements of the ESA for the protection of bull trout and bull trout habitat.

A portion of this area is within the Grandmother Mountain WSA. Interim management affords limited protection of fisheries ORVs in the areas within the WSA. These management measures, although effective, are only interim and could be removed by congressional action.

7. Historical or existing rights that could be adversely affected with designation:

   The Coeur d'Alene Tribe may have historical rights for fishing, hunting, and gathering. Little Lost Lake Creek may also hold spiritual significance to the tribe. The right of the Coeur d'Alene Tribe to alter the stream by installing dams or by channelizing is unknown.

8. Other:

   No other major issues or concerns regarding suitability of this segment have been identified in the land use planning process.

Segment 5: Lund Creek

1. Characteristics that do or do not make the river a worthy addition to the National System:

   This segment contains outstandingly remarkable fisheries and botanic values. Fisheries ORVs are related to spawning and rearing habitat for bull trout and westslope cutthroat trout. Lund Creek provides the best cold water refugia within this upper section of the Little North Fork Clearwater River. Botanic ORVs are related to the unique plant assemblages in this area. These values are dependent upon the free flowing nature of the river segment.

The segment is only accessible by foot; there are no maintained trails along this segment.

The segment has no water quality issues.

2. The status of land and mineral ownership, use in the area, and associated or incompatible uses:

   The segment is 3.88 miles long and is entirely on federally managed lands. BLM manages lands along 3.09 miles (80%) of the segment, and USFS manages lands along the remaining 20 percent of the segment (See Map #71 in RMP Volume III). The study corridor included all lands within one-quarter mile of the river.

   The entire BLM-managed portion of the study corridor is within the Lund Creek RNA/ACEC, which includes management measures to prevent any destructive activities. No vegetative manipulation, including timber harvest, or vehicle use is permitted.

   A query of BLM's LR2000 database (accessed January 2005) revealed no active mining claims on the identified BLM lands or adjacent USFS lands. A review of the Mines and Prospects of the Wallace Quadrangle, Idaho indicated no historical activity on the identified BLM lands and one very old prospect (1911) for gold, silver, copper, and lead within one mile of the headwaters. Other prospects in the area for metals, mica, feldspar, and sand and gravel were all more than a mile away. This information agrees with the mineral potential classification assigned to this region in the Mineral Occurrence and Development Potential Report, Coeur d'Alene Field Office Planning Area (BLM 2005). Current information suggests it is a hardrock area with low potential for all minerals.

   Public land status in this area is unencumbered; there are no existing leases, ROWs, utility corridors or withdrawals associated with these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System, and values that would be foreclosed or diminished if the area were not designated:

   If the segment were designated as a WSR, future timber harvests and construction of roads would not be permitted within the designated corridor. This would result in a specific riparian no harvest/activity buffer zone incorporated into any future timber sales in this area. Such restrictions would be consistent with current management measures for the Lund Creek RNA/ACEC. WSR designation would complement the protection given to the natural features and ecological diversity by the existing Lund Creek RNA/ACEC. No vegetation manipulation or vehicle use is permitted within this RNA/ACEC.

Classification as a wild river would include withdrawal of the area from mineral entry.

Lund Creek is used very little for recreation except for primitive hunting opportunities. Consequently, designation is not likely to affect recreational use of the area.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river:

   At this time, no specific federal, state, tribal, local, or public entity has expressed interest in this segment of the Lund Creek regarding wild and scenic designation. BLM anticipates comments on wild and scenic river designation from interested parties to be received during the Draft RMP comment period.

   Several different entities would be interested in whether this segment is designated or not designated for inclusion in the National Wild and Scenic Rivers System. The primary entity would be the USFS. The USFS manages lands along the lower section between BLM lands and the confluence with the Little North Fork Clearwater River.

   Other entities potentially interested include the Coeur d'Alene Tribe, Idaho Fish and Game, Shoshone County, local fishing clubs, outfitters, and other authorized users.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated:

   All lands along the river segment are federally managed, so no land acquisition would be required. Coordination with USFS on designation and management would be necessary to protect ORVs.

6. The ability of the agency to manage and protect the river area or segment as a Wild and Scenic River, or other means to protect the identified values other than Wild and Scenic River designation:

   Protection of fisheries ORVs on BLM lands would likely be accomplished through BLM's implementation of the INFISH standards and guidelines for the protection of Riparian Habitat Conservation Areas (RHCA). RHCAs are portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines.

   For "fish-bearing streams," Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the greater of:

   - the top of the inner gorge or to the outer edges of the 100-year floodplain, or
   - to the outer edges of riparian vegetation, or

- to a distance equal to the height of the two site potential trees or 300 feet slope distance (600 feet including both sides of the stream channel),.

Depending on the topography, the RHCA could be smaller or larger than the wild and scenic river corridor, if designated.

Cooperative management with USFS in adjacent parcels would be required to ensure protection of fisheries and botanic ORVs.

BLM and USFS also manage this riparian corridor according to the requirements of the ESA for the protection of bull trout and bull trout habitat.

Current RNA/ACEC designation provides protection of riparian habitat for the majority of the segment. The lower mile currently outside the RNA/ACEC has been nominated for designation as an ACEC and is being evaluated. Interim management measures for the WSA provide additional protection.

7. Historical or existing rights that could be adversely affected with designation:

   The Coeur d'Alene Tribe may have historical rights for fishing, hunting, and gathering. Lund Creek may also hold spiritual significance to the tribe. The right of the Coeur d'Alene Tribe to alter the stream by installing dams or by channelizing is unknown.

8. Other:

   No other major issues or concerns regarding suitability of this segment have been identified in the land use planning process.

2.4 SUITABILITY DETERMINATION SUMMARY

Four of the five eligible segments were determined to be suitable for inclusion in the National System. Below is a summary of each of the five segments.

2.4.1 Segment 1: Kootenai River

This segment contains outstandingly remarkable values for fisheries, wildlife, and botanics. Within the BLM-managed portions of this segment, there is high quality spawning and/or rearing habitat for Kootenai sturgeon, bull trout, burbot, and westslope cutthroat trout. Bald eagles nest and forage along the Kootenai River from the Montana state line downstream to Bonner's Ferry. Botanic ORVs are related to the unique botanical values within the Hideaway Islands RNA/ACEC. The segment would meet classification criteria as Recreational because of the presence of a railroad parallel to the shoreline.

Designation of this segment would result in several management challenges because of the scattered land pattern and controlled flows. Land uses on privately owned parcels adjacent to the river could adversely affect fisheries habitats downstream in the BLM-managed portions. Activities such as timber harvest and sand/gravel extraction could increase sedimentation and could result in increased water temperatures due to decreased riparian shade, which would affect fish habitats in BLM-managed segments. Additionally, water flow management from Libby Dam is key to protecting the fisheries and wildlife values. Managing flows is not under the jurisdiction of BLM. Due to these management challenges, this segment has been determined **not suitable** for designation as a **Recreational** river within the National System.

Although this segment contains ORVs worthy of protection, and designation would result in minimal changes to management on the BLM-managed parcels, the determination that this segment is unsuitable for designation at this time is based on the following direction from the updated BLM guidance 8351.06B and 8351.33A:

8351.06B—"In cases where a particular river segment is predominantly non-Federal in ownership and contains interspersed BLM-administered lands, BLM shall evaluate only its segment as to eligibility and defer to the State or to the private landowners' discretion as to their determination of eligibility.

8351.33A—A.2, Status of land ownership, minerals, use in the area, including the amount of private land involved, and associated or incompatible uses. Jurisdictional consideration (administrative role and/or presence) must be taken into account to the extent that management would be affected. In situations where there is limited public lands (shoreline and adjacent lands) administered by the BLM within an identified river study area, it may be difficult to ensure those identified outstandingly remarkable values could be properly maintained and afforded adequate management protection over time. Accordingly, for those situations where the BLM is unable to protect or maintain any identified ORV, or through other mechanisms (existing or potential), river segments may be determined suitable only if the entity with land use planning responsibility supports the finding and commits to assisting the BLM in protecting the identified river values."

The final suitability determination relies on the judgment of BLM resource experts. The initial "not suitable" determination is based primarily on the assumption that potential land use activities (i.e., timber harvest, sand/gravel extraction, and dam operations) on private and state land parcels upstream of BLM parcels could adversely affect fisheries habitat in the BLM-managed sections.

2.4.2 Segment 2: Little North Fork Clearwater River

This segment contains outstandingly remarkable fisheries values. These values are related to the high quality spawning and rearing habitat for bull trout and westslope cutthroat trout. BLM manages lands along 2.56 miles of this 3.61-mile segment, with USFS managing the remaining lands. The segment meets classification criteria for Wild in the upstream portion from the western USFS boundary to the headwaters at Fish Lake. The downstream portion from the eastern USFS boundary to shortly below the confluence with Lost Lake Creek meets the criteria for Recreational due to a dirt road that parallels this segment. Managing these sections for protection of fisheries ORVs would result in minimal changes to existing management but would provide an additional layer of protection for this river segment. The Breezy Saddle timber sale would need to be reviewed to ensure that INFISH standards and guidelines are implemented to protect sufficient riparian habitat. Coordination with USFS would be required to ensure consistent management. However, the USFS implementation of INFISH standards and guidelines, and ESA requirements for lands along this segment, would prevent USFS land use activities from adversely affecting fish habitats in BLM-managed segments downstream. This segment has been determined **suitable** for designation as **Wild (upstream)** and **Recreational (downstream)** within the National System.

2.4.3 Segment 3: Lost Lake Creek

This segment contains ORVs for fisheries related to the high quality spawning and rearing habitat for bull trout and westslope cutthroat trout. Land status and ownership along this 3.43-mile segment is scattered. Beginning at Lost Lake and proceeding downstream, land status is USFS, BLM, USFS, private, USFS, private, and ending on BLM lands at the confluence with the Little North Fork Clearwater River. This creates some management challenges. On federally managed lands (USFS and BLM), INFISH standards and guidelines and ESA requirements should protect fish habitats and the necessary riparian buffer. The upstream portion on BLM-managed lands would meet the classification criteria for a wild river. The downstream portion, which includes the confluence with the Little North Fork Clearwater River, would meet classification criteria for a scenic river. Designation of this segment would result in minimal changes to BLM management. Some monitoring and potential modification of trail uses and maintenance may be required. Land uses on private parcels (controlled by a timber company) could adversely affect fish habitats in the downstream BLM-managed portion. Increased sedimentation from runoff and decreased riparian habitat could result from timber harvest practices. Timber harvest on these parcels would follow Idaho state forest practices, but this would not eliminate the potential for adverse impacts. BLM would pursue acquisition of land and/or easements, on a willing seller basis, within the riparian corridor for these parcels. This segment has been determined **suitable** for designation as a **Wild (upstream portion)** and **Scenic (downstream portion)** river within the National System.

This suitability determination is based on the assumption that timber harvest and other activities on the private parcels would not significantly affect fish habitats. If this assumption is not correct, then BLM should consider only finding the upstream portion suitable for designation.

2.4.4 Segment 4: Little Lost Lake Creek

This segment contains fisheries ORVs related to its high quality spawning and rearing habitat for bull trout and westslope cutthroat trout. All lands immediately adjacent to the segment are federally managed, with the majority (69%) administered by BLM. This segment would meet classification criteria as a wild river. Designating this segment would result in minimal changes to existing management but would provide protections compatible with the WSA designation and the ESA. OHV use of the trail paralleling the river would be monitored for effects to fish habitat in the segment. Future timber sales would be subject to riparian exclusion zones to prevent increased sedimentation. The USFS manages the land downstream of the BLM portion. Land use activities on USFS lands would have minimal affect on BLM-managed sections. The USFS implementation of INFISH standards and guidelines, and ESA requirements for lands along this segment, would prevent USFS land use activities from adversely affecting fish habitats. The only potential management challenges for this segment would arise from land use activities on privately owned lands within the watershed. Private parcels are not located immediately adjacent to Little Lost Lake Creek but are within one-quarter mile of the river. Consequently, activities such as timber harvest could result in increased sedimentation in the river. This adverse affect is not expected to occur do to the protections afforded the segment from WSA designation and the requirements of the ESA. This segment has been determined **suitable** for designation as a **Wild** river within the National System.

2.4.5 Segment 5: Lund Creek

This segment contains fisheries and botanic ORVs. Lund Creek provides the best cold water refugia on BLM land in the upper Little North Fork Clearwater River watershed for bull trout and westslope cutthroat trout. Botanic values are related to the unique plant assemblages associated with the creek. BLM manages the majority of lands along the creek (80%). USFS manages land along the downstream 20 percent of the creek. Access to this segment is limited to foot traffic, with no maintained trails. This segment would meet classification criteria as Wild. Designating this segment would result in minimal changes to existing management but would provide layer of protection for the fisheries and botanic values compatible with the protection already afforded by the RNA/ACEC designation, WSA designation and requirements of the ESA. This segment has been determined to be **suitable** for designation as a **Wild** river within the National System.

TAB A
ELIGIBILITY CRITERIA

A.1 INTRODUCTION

For the purpose of classification, a river area may be divided into segments. For example, changes in river character, such as the presence of dams and reservoirs, significant changes in types or amounts of development, significant changes in physiographic character, tributaries, or features, and/or significant changes in land status should be considered in identifying river segments for evaluation. Management strategies necessary to administer the entire river area should also be taken into account. As such, excessive segmentation should be avoided. Each segment, considered as a whole, needs to conform to either the Wild, Scenic, or Recreational classification. There are no specific requirements for segment length. Congress has designated a segment to be as short as four miles. A river segment is of sufficient length if a specific outstandingly remarkable value or values can be protected (a factor in the suitability determination, not eligibility determination), should the segment be designated. An entire stream could be one segment.

Each identified river segment in the RMP planning area must be evaluated to determine whether or not it is eligible for inclusion in the National System. To be eligible, a river segment must be free-flowing and must possess at least one outstandingly remarkable value. Free-flowing means "existing or flowing in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the water." Please note the following:

- A river below a dam or impoundment is still eligible;
- A river need not be navigable by watercraft in order to be eligible; and
- There are no specific requirements concerning the flow of an eligible river segment. Flows are sufficient if they sustain or complement the outstandingly remarkable values for which the segment would be designated. As such, intermittent and ephemeral streams are eligible.

A.2 OUTSTANDINGLY REMARKABLE VALUES

The determination of whether a river area contains outstandingly remarkable values is a professional judgment and needs to be documented. In order to be considered as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant at a comparative regional or national scale. While the spectrum of resources that may be considered is broad, all values should be directly river-related; that is, they should have the following characteristics:

- Be located in the river or on its immediate shore lands (for the purposes of this study, the preliminary boundary is one-quarter mile on either side of the river);
- Contribute substantially to the functioning of the river ecosystem; or
- Owe their location or existence to the presence of the river.

The following are general guidelines for the outstandingly remarkable values for which river segments can be eligible. Only one such value is needed for eligibility.

A.2.1 Scenic

The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features or attractions. When analyzing scenic values, additional factors, such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse over most of the river or river segment.

A.2.2 Recreational

Recreational opportunities are or have the potential to be popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. Visitors are willing to travel long distances to use the river resources for recreation. River-related opportunities include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing, and boating.

- Interpretive opportunities may be exceptional and may attract or have the potential to attract visitors from outside the region of comparison.
- The river may provide or have the potential to provide settings for national or regional use or competitive events.

A.2.3 Geological

The river, or the area within the river corridor, contains one or more examples of a geologic feature, process, or phenomenon that are unique or rare within the region of comparison. The features may be in an unusually active stage of development, represent a textbook example, or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).

A.2.4 Fish

Fish values may be judged on the relative merits of either fish populations or habitat or a combination of the following river-related conditions:

- *Populations.* The river is nationally or regionally one of the top producers of resident, indigenous, or anadromous fish species. Of particular significance may be the presence of wild or unique stocks or populations of state- or US-listed or candidate threatened and endangered species.
- *Habitat.* The river provides exceptionally high quality habitat for fish species indigenous to the region. Of particular significance is habitat for state- or US-listed or candidate threatened and endangered species.

A.2.5 Wildlife

Wildlife values may be judged on the relative merits of either wildlife populations or habitat or on a combination of the following conditions:

- *Populations.* The river or area within the river corridor contains nationally or regionally important populations of resident or indigenous wildlife species depending on the river environment. Of particular significance may be species considered to be unique or populations of state- or US-listed or candidate threatened and endangered species.
- *Habitat.* The river or area within the river corridor provides exceptionally high quality habitat for wildlife of national or regional significance or may provide unique habitat or a critical link in habitat conditions for state- or US-listed or candidate threatened and endangered species. Contiguous habitat conditions are such that the biological needs of the species are met.

A.2.6 Cultural

The river or area within the river corridor contains a site or sites where there is evidence of occupation or use by Native Americans. Sites must be rare or must have unusual characteristics or exceptional human interest values. Sites may have national or regional importance for interpreting prehistory; may be rare; may represent an area where culture or a cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare or sacred purposes.

A.2.7 Historic

The river or area within the river corridor contains a site or sites or feature or features associated with a significant event, an important person, or a cultural activity of the past that was rare or unusual in the region. A historic site or feature in most cases is 50 years old or older. Sites or features listed on or eligible for inclusion on the National Register of Historic Places may be of particular significance.

A.2.8 Other Similar Values

While no specific evaluation guidelines have been developed for the other similar values category, additional values deemed relevant to the eligibility of the river segment should be considered in a manner consistent with the foregoing guidance, including, but not limited to, hydrologic, ecologic/biologic diversity, paleontologic, botanic, and scientific study opportunities.

TAB B

RIVER SEGMENTS FROM INITIAL IDENTIFICATION EFFORTS

Table B-1 lists the Planning Area river and stream segments considered during initial identification efforts for the Wild and Scenic Rivers study process.

Table B-1
Wild and Scenic River Eligibility Review Summary

Stream Name	Free Flowing	Scenic	Rec.	Geology	Fish	Wildlife	Cultural	Historic	Other	Eligible	Remarks
Ahrs Creek	YES									NO	
Ahrs Gulch	YES									NO	
Alder Creek	YES									NO	
Alder Gulch	YES									NO	
Amy Gulch	YES									NO	
Antelope Creek	YES									NO	
Argentine Creek	YES									NO	
Baldy Creek	YES									NO	
Beaver Creek	YES									NO	
Big Creek	YES									NO	
Black Prince Creek	YES									NO	
Blackcloud Creek	YES									NO	
Blackjack Creek	YES									NO	
Blackwell Canals	NO									NO	Man-made canals
Blue Creek	YES									NO	
Blue Eagle Creek	YES									NO	
Boulder Creek	YES									NO	
Butte Gulch	YES									NO	
Calusa Creek	YES									NO	
Carbon Creek	YES									NO	
Caribou Creek	YES									NO	
Cascade Creek	YES									NO	
Clark Fork River	YES									NO	
Coeur d'Alene River	YES									NO	
Cougar Gulch	YES									NO	
Cranky Gulch	YES									NO	
Crater Creek	YES									NO	
Daly Gulch	YES									NO	
Deadman Gulch	YES									NO	
Delaney Creek	YES									NO	
Denver Creek	YES									NO	
Dexter Gulch	YES									NO	
Dobson Gulch	YES									NO	
Douglas Creek	YES									NO	
Dry Butte Gulch	YES									NO	
Dry Gulch	YES									NO	
Duplex Creek	YES									NO	

Table B-1
Wild and Scenic River Eligibility Review Summary *(continued)*

Stream Name	Free Flowing	Scenic	Rec.	Geology	Fish	Wildlife	Cultural	Historic	Other	Eligible	Remarks
East Fork Nine Mile Cr.	**YES**									NO	
East Fork Pine Creek	**YES**									NO	
Elk Creek	**YES**									NO	
Evans Creek	**YES**									NO	
Experimental Draw	**YES**									NO	
Falls Creek	**YES**									NO	
Farnham Creek	**YES**									NO	
Floodwood Creek	**YES**									NO	
Fortynine Meadows Cr.	**YES**									NO	
Freeman Creek	**YES**									NO	
Freezeout Creek	**YES**									NO	
Gentle Annie Gulch	**YES**									NO	
Gilbert Creek	**YES**									NO	
Gold Hunter Gulch	**YES**									NO	
Gold Run	**YES**									NO	
Gorge Gulch	**YES**									NO	
Government Gulch	**YES**									NO	
Grader Gulch	**YES**									NO	
Grouse Creek	**YES**									NO	
Grouse Gulch	**YES**									NO	
Harvey Creek	**YES**									NO	
Hauck Gulch	**YES**									NO	
Highland Creek	**YES**									NO	
Hord Gulch	**YES**									NO	
Hunter Creek	**YES**									NO	
Idaho Gulch	**YES**									NO	
Jackass Creek	**YES**									NO	
Katka Creek	**YES**									NO	
Klondike Gulch	**YES**									NO	
Kootenai River	**YES**				**YES**	**YES**			**Botanic**	**YES**	**Also Forest Service lands**
Lake Creek	**YES**									NO	
Latour Creek	**YES**									NO	
Little Lost Lake Creek	**YES**				**YES**					**YES**	**Also Forest Service lands**
Little North Fork Clearwater River	**YES**				**YES**					**YES**	**Also Forest Service lands**

Table B-1
Wild and Scenic River Eligibility Review Summary *(continued)*

Stream Name	Free Flowing	Scenic	Rec.	Geology	Fish	Wildlife	Cultural	Historic	Other	Eligible	Remarks
Little Pine Creek	**YES**									NO	
Little Sand Creek	**YES**									NO	
Little Terror Gulch	**YES**									NO	
Lost Lake Creek	**YES**				**YES**					**YES**	**Also Forest Service lands**
Lund Creek	**YES**				**YES**				**Botanic**	**YES**	**Also Forest Service lands**
Lyle Creek	**YES**									NO	
Lynch Gulch	**YES**									NO	
Marble Creek	**YES**									NO	
McFarren Gulch	**YES**									NO	
McKinley Gulch	**YES**									NO	
McLaren Gulch	**YES**									NO	
McQuade Gulch	**YES**									NO	
Meyer Gulch	**YES**									NO	
Middle Fork Pine Creek	**YES**									NO	
Mill Creek	**YES**									NO	
Mineral Creek	**YES**									NO	
Missoula Gulch	**YES**									NO	
Nabob Creek	**YES**									NO	
Ninemile Creek	**YES**									NO	
North Fork Glover Cr.	**YES**									NO	
Ophir Gulch	**YES**									NO	
Parker Creek	**YES**									NO	
Pend Oreille River	**YES**									NO	
Pinchot Creek	**YES**									NO	
Pine Creek	**YES**									NO	
Placer Creek	**YES**									NO	
Polaris Gulch	**YES**									NO	
Prichard Creek	**YES**									NO	
Prospect Gulch	**YES**									NO	
Red Cloud Creek	**YES**									NO	
Red Oak Gulch	**YES**									NO	
Reeder Gulch	**YES**									NO	
Reeds Gulch	**YES**									NO	
Revenue Gulch	**YES**									NO	
Rochat Creek	**YES**									NO	
Rock Creek	**YES**									NO	

Table B-1
Wild and Scenic River Eligibility Review Summary *(continued)*

Stream Name	Free Flowing	Scenic	Rec.	Geology	Fish	Wildlife	Cultural	Historic	Other	Eligible	Remarks
Ross Gulch	**YES**									NO	
Ruddy Gulch	**YES**									NO	
Saint Joe Creek	**YES**									NO	
Sawmill Gulch	**YES**									NO	
Scott Creek	**YES**									NO	
Shields Gulch	**YES**									NO	
Slaughterhouse Gulch	**YES**									NO	
Sourdough Gulch	**YES**									NO	
South Fork Coeur d'Alene River	**YES**									NO	
Spokane River	NO									NO	**Above Post Falls Dam**
St. Joe River	**YES**										**Previously studied**
Stinson Creek	**YES**									NO	
Street Creek	**YES**									NO	
Sunnyside Creek	**YES**									NO	
Syringa Creek	**YES**									NO	
Terror Gulch	**YES**									NO	
Tiger Gulch	**YES**									NO	
Trapper Creek	**YES**									NO	
Trowbridge Gulch	**YES**									NO	
Twin Spring Creek	**YES**									NO	
Watson Gulch	**YES**									NO	
Wesp Gulch	**YES**									NO	
West Fork Big Creek	**YES**									NO	
West Fork Elk Creek	**YES**									NO	
West Fork McFarren Gulch	**YES**									NO	
West Fork Pine Creek	**YES**									NO	
West Fork Placer Creek	**YES**									NO	

TAB C
CLASSIFICATION CRITERIA FOR WILD, SCENIC, AND RECREATIONAL RIVER AREAS

Table C-1
Classification Criteria for Wild, Scenic, and Recreational River Areas

Attribute	Wild	Scenic	Recreational
Water Resources Development (impoundments, diversions, etc.)	Free of impoundment.	Free of impoundment.	Some existing impoundment or diversion. The existence of low dams, diversions, riprap, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Essentially primitive. Little or no evidence of human activity. The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable. A limited amount of domestic livestock grazing or hay production is acceptable. Little or no evidence of past timber harvest. No ongoing timber harvest.	Largely primitive and undeveloped. No substantial evidence of human activity. The presence of small communities or dispersed dwellings or farm structures is acceptable. The presence of grazing, hay production, or row crops is acceptable. Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	Some development. Substantial evidence of human activity. The presence of extensive residential development and a few commercial structures is acceptable. Lands may have been developed for the full range of agricultural and forestry uses. May show evidence of past and ongoing timber harvest.

Table C-1
Classification Criteria for Wild, Scenic, and Recreational River Areas *(continued)*

Attribute	Wild	Scenic	Recreational
Accessibility	Generally inaccessible except by trail. No roads, railroads, or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the river area is acceptable.	Accessible in places by road. Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.	Readily accessible by road or railroad. The existence of parallel roads or railroads on one or both banks, as well as bridge crossings and other river access points, including fords, is acceptable.
Water Quality	Meets or exceeds federal criteria or federally approved state standards for aesthetics, for propagation of fish and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming), except where exceeded by natural conditions.	No criteria prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the US be made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists or is being developed in compliance with applicable federal and state laws.	

Source: Federal Register. National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas. Section 1(3), Vol. 47, No. 173, page 39461. September 7, 1982.

TAB D

INTERIM PROTECTION FOR CANDIDATE WILD AND SCENIC RIVERS

Table D-1
Interim Protection for Candidate Wild and Scenic Rivers

	Wild and Scenic Rivers Act, Section 5(d)(1)[1]	
Issue/Action	**Eligible[2]**	**Suitable**
Study Boundary	Minimum of 0.25 mile from ordinary high-water mark. Boundary may include adjacent areas needed to protect identified values.	Minimum of 0.25 mile from ordinary high-water mark. Boundary may include adjacent areas needed to protect identified values.
Preliminary Classification	Section 2(b): 3 classes: Wild, Scenic, Recreational, defined by statute. Criteria for classification described in Interagency Guidelines. Manage at preliminary classification.	Section 2(b): 3 classes: Wild, Scenic, Recreational, defined by statute. Criteria for classification described in Interagency Guidelines. Manage at preliminary classification.
Study Report Review Procedures		Notice of study report/draft EA[3] published in Federal Register. Comments/response from federal, state, and local agencies and the public included in the study report/final EA[4] transmitted to the President and Congress.

Table D-1
Interim Protection for Candidate Wild and Scenic Rivers *(continued)*

	Wild and Scenic Rivers Act, Section 5(d)(1)[1]	
Issue/Action	**Eligible[2]**	**Suitable**
Private Land *Administration *Acquisition	Affect private land uses through voluntary partnership with state/local governments and landowners. No regulatory authority. No ability to acquire interest in land under the act's authority prior to designation.	Affect private land uses through voluntary partnership with state/local governments and landowners. No regulatory authority. No ability to acquire interest in land under the act's authority prior to designation. Typically an evaluation of the adequacy of local zoning and land use controls is a component of suitability determination[5].
Water Resources Project	River's free-flowing condition protected to the extent of other agency authorities; not protected under the act.	River's free-flowing condition protected to the extent of other agency authorities; not protected under the act.
Land Disposition	Agency discretion to retain lands within river corridor in federal ownership.	Agency discretion to retain lands within river corridor in federal ownership.
Mining and Mineral Leasing	Protect free flow, water quality, and outstandingly remarkable values through other agency authorities.	Protect free flow, water quality, and outstandingly remarkable values through other agency authorities.
Actions of Other Agencies	Affect actions of other agencies through voluntary partnership.	Affect actions of other agencies through voluntary partnership.
Protect Outstandingly Remarkable Values	No regulatory authority conferred by the act; agency protects through other authorities. Section 11(b) 1: Limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources[6].	No regulatory authority conferred by the act; agency protects through other authorities. Section 11(b) 1: Limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources[6].

[1] Agency-identified study rivers as directed by Section 5(d)(1) of the act.

[2] A number of sources are available for identifying rivers under Section 5(d)(1). Under a Presidential Directive issued in 1979, each federal agency, as part of its normal planning and environmental review processes, is required to avoid or mitigate adverse effects on rivers in the National Rivers Inventory.

[3] Draft environmental assessment

[4] Final environmental assessment

[5] For an agency-identified study river that includes private lands, there is often the need to evaluate existing state and local land use controls and, if necessary, to assess the willingness of state and local governments to protect river values.

[6] Section 11(b)1 authorizes the Secretary of the Interior and Secretary of Agriculture or the head of any other federal agency to provide for "limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources." This authority "applies within or outside a federally administered area and applies to rivers which are components of the National Wild and Scenic Rivers System and to other rivers." The recipients of federal assistance include states or their political subdivisions, landowners, private organizations, or individuals. Some examples of assistance under this section include, but are not limited to, riparian restoration, riparian fencing to protect water quality and riparian vegetation, or vegetative screening to enhance scenery/recreation experience.

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